



1910.

SUMMARY OF THE REPORTS
OF THE
DISTRICT MEDICAL OFFICERS OF HEALTH
IN THE
ADMINISTRATIVE COUNTY OF ESSEX,
For the Year 1909.

PREPARED FOR THE COUNTY COUNCIL

BY

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PREFACE.

*To the Chairman and Members of the Housing and Sanitary Committee of the
Essex County Council.*

GENTLEMEN,

I have the honour to submit to you the Fifteenth Annual Summary of the Reports of the Medical Officers of Health in the County. In the various sections relating to "Sanitary Administration" I have made reference to some of the work done by the late Sanitary Committee and I have also included a brief section relating to the administration of the Midwives Act. It is probable that before another report is prepared the Local Government Board will issue a memorandum regarding the duties of the County Medical Officers of Health and specifying the nature of the information which they will require that official to embody in his Annual Report. I have no doubt that they will require much the same kind of information as is given in the present report, but they may ask for more details with reference to the administration of the County Council, especially in connection with the Housing and Town Planning Act.

Year by year the local reports improve in character, but many are yet far from being entirely satisfactory. Sufficient information is not given, and the tables upon which the mortality and sickness statistics are based are not always correct, nor are the instructions of the Local Government Board, given for the guidance of Medical Officers of Health and for the purpose of ensuring uniformity, properly attended to. The greatest defect, however, lies in the absence of all guidance for the Authority for which the report is prepared. Instead of pointing out sanitary defects which require remedying, and improvements required in administration, neither is mentioned in very many reports. I have discussed this matter with various Medical Officers of Health and some have not hesitated to express the opinion that if they opened their minds freely in their reports, they would soon cease to hold their appointments. Whilst agreeing that security of tenure would ensure more valuable reports, I am not convinced that the argument has any great weight. Those Medical Officers who do report fully are liable to have their appointments not renewed, but does this ever occur? Unpalatable truths can generally be administered harmlessly with a little tact. Some drugs are exceedingly nauseous but if carefully wrapped up and sugar-coated they may be administered without trouble, and thus prepared may be even more efficacious than the crude drug. But in any case a duty undertaken is a duty to be performed, be the results what they may.

Notwithstanding all our shortcomings, the Administrative County of Essex is the healthiest County in England, the death-rate for 1909 being only 10·7 per 1,000 population, whilst the average for England and Wales was 14·5. Even salubrious Surrey had a death-rate of 12·8, or over 2 per 1,000 more than Essex. Obviously it possesses some natural advantages which should render it more popular for residential purposes. What these advantages are which tend to the longevity of the inhabitants

it may be impossible to say, but the fact remains that the death-rate is always far below that for England and Wales and generally lower than that of any other county. It is not always the country which most charms the eye which is the most invigorating and health giving, and those who prefer health to scenery will be well advised to give Essex a trial. Even in Essex there are multitudes of charmingly situated parishes, and many places which may be described as picturesque and which must become populous when their advantages are better known. The phthisis mortality is 30 to 40 per cent. below the average for England and Wales, which should be an additional incentive to many families to settle in Essex.

There can be no question also that the increasing efficiency of the sanitary administration will result in still further lowering the death-rate. The greater supervision exercised over the health and well being of school children will tend to produce a more virile race, who will be more disease resisting, more intelligent, and more anxious to avoid and more capable of avoiding preventible diseases.

The birth-rate still exceeds the death-rate by 12 per 1,000, but unfortunately the birth-rate is declining more rapidly than in most other counties. This is the fly in the ointment. It is to be hoped that the common-sense of the people will before long put an end to this decline, which is a serious menace to the prosperity of the country.

In preparing this Report the Medical Officers of Health have, without exception, replied courteously to all my enquiries and have corrected the summaries of their reports. Once again I have to express to them my sincere thanks for their unfailing courtesy.

JOHN C. THRESH.

CHELMSFORD,

21st July, 1910.

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SECTION I.

POPULATION OF THE COUNTY.

The time is now approaching when the usual decennial census will be taken, and as the populations for 1909 were made 8 years after the last census it is not unlikely that errors are accumulating, and that the coming census will reveal these errors. After the 1901 census it was found that there was an error of about 40,000 in the Medical Officers' estimates of the population, which was not remarkable considering the rapid growth of the County, and it will be a fortunate circumstance if the next error is not larger, since a mistake of this magnitude will not seriously affect the statistics for a population of over one million.

In the great majority of cases, and in all the important cases, great care appears to be taken to obtain a correct estimate, based on the number of inhabited houses, and where this is done no very serious error is probable.

In 1908 the Urban population was estimated at 791,277, last year it was estimated at 815,587, an increase of 24,310. In the Rural districts the 1908 population was estimated at 250,179, and last year it is given as 255,386, an increase of 5,207. The total estimated increase during the year is 29,517. The increase given for the previous year was 34,155.

The total population of the County in 1909 is given as				1,070,973
" " " at 1901 census was				816,640
An increase in $8\frac{1}{4}$ years of				...
				254,333

THE BIRTH-RATES.

The total number of births registered in the County was 24,448, as compared with 24,954 in 1908, and 25,258 in 1907. With an increasing population there is an actual decrease in the number of births.

TABLE I.
BIRTH-RATES PER 1,000 POPULATION.

					1909.	1908.	1907.
Urban Districts	...	...	...	...	22·9	24·0	25·7
Rural Districts	...	...	...	...	22·5	23·8	23·2
Administrative County	...	...	..	...	22·85	24·0	25·1
England and Wales	...	...	...	...	25·6	26·5	26·3

The decrease affects both Urban and Rural Districts and is apparently much more marked in Essex than in England and Wales as a whole. In the towns the birth-rate has varied from 15·2 at Brentwood to 34·9 in Shoeburyness. In the Rural area the variations are not so marked, the lowest being 16·25 in Halstead No. 1 and the highest 27·2 in Orsett.

The birth-rate in proportion to the number of women of marriageable age is much more reliable than the birth-rate based on the whole population, but it is possible to correct the latter from the former and in Table II. this has been done.

TABLE II.
CORRECTED BIRTH-RATES.

	Crude Birth-rate.	Correction Factor.	Corrected Birth-rate.
East Ham	23·5	·786	18·5
Walthamstow	24·7	·8326	20·55
Leyton	24·6	·9165	22·55
Urban Districts of Essex	22·9	·9146	20·95
Rural Districts „	22·5	1·1886	26·75
Administrative County of Essex	22·85	·981	22·4
England and Wales	25·6	1·000	25·6

This Table shews that in proportion to the number of marriageable women the birth-rate is much higher in the Rural than in the Urban Districts, and, what is more remarkable, that the birth-rate in East Ham is lower than in the Urban Districts generally. As East Ham probably contains a greater proportion of labourers and persons of the poorer class than any other of the large centres of population, the results indicate that the decline in the birth-rate is even more marked amongst such people than amongst those of a better class. This conclusion is diametrically opposed to the generally accepted view—that the lowest classes are propagating the most rapidly.

THE DEATH-RATES.

The total number of deaths recorded in the County (including 247 deaths which occurred in the County Asylum) is 11,494. Assuming that the Asylum deaths are uniformly distributed, the deaths referable to the Urban Districts were 8,222 and to the Rural districts 3,272. The deaths-rates for 1909 in the following Table are based on these figures:—

TABLE III.
DEATH-RATES PER 1,000 POPULATION.

	1909.	1908.	1907.
Urban Districts	10·1	10·25	10·9
Rural Districts	12·75	12·95	13·2
Administrative County	10·7	10·9	11·45
England and Wales	14·5	14·7	15·0

The death-rate continues to decline and for the last few years has been remarkably low. It is singular that a county with such a large proportion of working class population should persistently have so low a death-rate. To maintain this low rate should be the desire of every sanitary authority. Efficient sanitary administration may possibly keep the death-rate at this low level, yet a few years ago we should scarcely have considered it within the bounds of possibility. As the death-rate in the Rural districts is a little higher than in the Urban, and is therefore capable of reduction, we may not yet have reached the minimum.

For comparative purposes the death-rates for other counties are given, calculated from the returns of the Registrar General for 1909.

TABLE IV.
Administrative County of Essex ... 10·7

County.	Death-rate.	County.	Death-rate.
Middlesex	11·7	East Riding (with York)	14·1
Essex	11·9	London	14·2
Kent	12·0	Cambridge	14·2
Northamptonshire	12·5	Norfolk	14·2
Surrey	12·8	Devon	14·3
Buckinghamshire	12·8	Lincolnshire	14·3
Westmoreland	12·8	Cheshire	14·5
Wiltshire	13·0	Herefordshire	14·6
Dorsetshire	13·1	West Riding (Yorkshire)	14·6
Leicestershire	13·2	Oxfordshire	14·8
Berkshire	13·3	Cornwall	14·8
Hampshire	13·4	Shropshire	14·8
Sussex	13·5	Northumberland	15·2
Worcestershire	13·5	Nottinghamshire	15·3
Suffolk	13·6	Durham	15·3
Gloucestershire	13·6	Cumberland	15·3
Derbyshire	13·6	Warwickshire	15·4
Somerset	13·7	Rutland	15·45
Huntingdonshire ..	13·75	Staffordshire	15·7
Hertfordshire	13·9	North Riding (Yorkshire)	16·1
Bedfordshire	13·9	Lancashire	16·6

When the necessary corrections are made for age and sex distribution it is seen that there is very little difference between the rates for the Rural and Urban areas, but that, as usual, the Rural rate is a little the higher.

TABLE V.
DEATH-RATES PER 1,000 POPULATION.

	Crude Death-rate.	Correction Factor.	Corrected Death-rate.
Urban Districts	10.1	1.036	10.46
Rural Districts	12.75	.8597	10.96
Administrative County	10.7	.9767	10.45
England and Wales	14.5	1.000	14.5

The correction factors for the largest towns have been worked out, and again it will be noticed that the younger towns have a lower death-rate than the ancient ones, Barking and Colchester.

TABLE VI.
DEATH-RATES PER 1,000 POPULATION.
(Not including deaths in the County Asylum.)

	Crude Death-rate.	Correction Factor.	Corrected Death-rate.
East Ham... ..	9.4	1.0764	10.11
Walthamstow	8.8	1.0578	9.3
Leyton	9.96	1.0294	10.25
Ilford	8.8	1.0790	9.49
Southend	10.29	1.0662	10.97
Colchester... ..	11.8	1.0606	12.51
Barking	12.8	1.0000	13.56

The death-rates for all the districts are given in Table XVI. In the towns these varied from 4.4 in Frinton, 7.2 in Waustead, and 8.2 in Woodford, to 13.6 in Braintree, and in the Rural areas from 9.7 in Halstead No. 1 and 10.9 in Orsett and Romford to 18.2 in Saffron Walden and 20.3 in Bumpstead. A careful comparison of the districts in which the death-rate is above the average with those in which it is below would probably reveal the cause of the excessive mortality.

INFANTILE MORTALITY.

The infantile mortality shews a decreasing tendency and is much below the average for England and Wales. Apparently, therefore, from birth onwards the probabilities of life are higher in Essex than in most other, if not all other counties.

1,541 infants under 1 year died in the Urban districts and 408 in the Rural, giving a total for the County of 1,949, which is 268 less than last year. As there were 24,448 births the deaths per 1,000 births were approximately 80, as against 89 for the previous year. So low a rate has not previously been recorded.

TABLE VII.
DEATHS OF INFANTS PER 1,000 BIRTHS.

	1909.	1908.	1907.	Mean 1900-6.
Urban Districts	83	93	93	133
Rural Districts	71	76	83	102
Administrative County	80	89	90	123
England and Wales	109	121	118	148

It remains to be seen whether these low rates can be maintained should a hot dry summer occur. The rate at which infants die at different age periods is given in the following Table, which is calculated from Table D. in the Appendix.

TABLE VIII.
PROPORTION OF INFANTS DYING AT CERTAIN AGES OUT OF EACH 100 DYING
BEFORE ATTAINING THE AGE OF ONE YEAR.

	Urban Districts.	Rural Districts.
Proportion dying before attaining the age of 1 week	24·79	28·68
„ over 1 week but under 1 month... ..	17·59	17·16
„ over 1 month but under 3 months	18·49	15·69
„ over 3 months but under 6 months	15·44	13·23
„ 6 months	23·69	25·24
Total	100	100

About one-fourth of the deaths of infants occur before the age of one week, and nearly one-half before the age of one month. The difference in the proportions in the Urban and Rural districts is not large and is entirely due to the excessive mortality in the Rural districts during the first week of life.

The chief causes of death and the mortality per 1,000 births are given in Table IX.

TABLE IX.

	Urban Districts.	Rural Districts.
Death-rate per 1,000 Birth from :		
Premature Birth	17·4	14·8
Congenital Defects	5·1	5·2
Convulsions	4·9	6·1
Diarrhœa	4·4	2·1
Debility	14·0	10·1
Tubercular Diseases... ..	3·4	2·1
Injury at Birth	·7	·7

Obviously tubercular, diarrhœal, and wasting diseases cause fewer deaths in the country than in the towns, but more rural born children died from convulsions. The differences last year were not so marked as in former years. The infantile mortality varied greatly in different districts, and Halstead and Harwich again occur in the list of towns with an excessive mortality. There is much female labour employed in Halstead and this may account for the high death-rate there, but the mortality in Harwich is not generally high.

Taking returns for 10 years, which are far more reliable than statistics for any single year, the following districts appear to have an excessive mortality amongst infants :—

	Infantile Mortality.
Barking	150
Chingford	113
Clacton	121
Colchester	119
East Ham	134
Epping	134
Frinton	124
Halstead	121
Leyton	115
Romford	112
Saffron Walden	115
Shoeburyness	114
Southend	135
Walthamstow	128
Wivenhoe	113

It is curious to find that places like Clacton and Southend have a higher infantile mortality than Leyton or Colchester.

The Notification of Births Act is in force in the following districts :—Barking, Grays and Ilford. Woodford after adopting the Act has apparently rescinded it.

BARKING. Out of 319 births notified 162 were attended by doctors and 157 by midwives. All the midwives cases are visited by a Lady Inspector. A handbook is given to the mother, and advice given where desired. The mothers are encouraged to take the children regularly to the Public Offices on a Tuesday afternoon for the babies to be weighed, etc. Advice is given to the mothers by the Medical Officer of Health or Lady Inspector. Arrangements have been made for the supply of dried milk at cost price to the poorer mothers, through two chemists in the town, and in a very few cases it is provided free of cost. Valuable assistance appears to have been rendered in several instances.

GRAYS. A lady visitor calls upon mothers and is said to be invariably well received.

ILFORD. The Act was only adopted on May 25th, 1909, and in the following month a District Health Visitor was appointed at a salary of £85 per annum. She, however, gives two-thirds of her time to and receives two-thirds of her salary from the Education Committee for duties in connection with the schools. Her assistance in the Public Health Department is said to have undoubtedly had a beneficial effect. 445 births were notified under the Act and only 69 were attended by midwives; 362 were attended by medical men and 19 by other persons. "The method of procedure adopted has been for the Health Visitor to pay a visit to the home three weeks after the birth of a child if a doctor is in attendance, and 10 to 14 days after if a non-medical person is in attendance. At the visit, particulars are obtained, printed matter containing the usual information is left, and more or less personal advice according to the circumstances of the case. Further visits are paid if deemed desirable from the information obtained." The Medical Officer of Health thinks the results more than justify the expenditure. He adds: "A fear has frequently been expressed that this work impairs the responsibility of the parent, but I am quite convinced that the very reverse applies, and that the effect is to increase and not diminish the parents' responsibility."

EAST HAM. In this borough a large number of cases of birth are attended by midwives from the Maternity Charity, and all these are voluntarily notified, and the School Nurse, who also acts as Health Visitor, calls at the houses where it is considered that her help and influence are likely to be most useful. The Medical Officer of Health points out that wasting diseases are responsible for nearly 50 per cent. of the deaths amongst infants and he makes the following pertinent observation: "It is practically impossible to remedy this mortality through the children; these feeble, puny infants are practically doomed from birth. Conditions in the parents must be chiefly responsible for this weakly condition and high death-rate in infants so young, and to remedy this Public Health work must be chiefly directed to the causal conditions in the parents and not to the children."

Dr. Clarke, Medical Officer of Health for Walthamstow, is apparently of the same opinion, and he also thinks that "infant mortality depends on so many varying causes, acting before and after birth, that it is unsafe to attribute the fewer deaths of infants in recent years to any particular measures taken on their behalf."

DEATHS AT VARIOUS AGE PERIODS.

The following Table gives the number of deaths at different age periods in the Urban and Rural districts, for each hundred deaths. Too much stress must not be laid upon it, since the age distribution in the two districts varies considerably. In the Rural districts there is a larger proportion of aged people than in the Urban districts, and this difference may be due to two different causes, having a markedly different significance. If the excess of aged people is due to the average length of life being longer under rural conditions, then the larger proportion of deaths of people over 65 is a natural consequence and a proof of the advantage of living under rural conditions. If on the other hand the excessive proportion of deaths of aged people is due to a decreased proportion of the young and middle aged due to migration, this excess has no such significance. Whatever the cause there is no gainsaying the fact that the mortality amongst the young is lower in the villages than in the towns, and that many more people in the country attain the age of 65 years than in the towns.

TABLE X.
PERCENTAGE OF DEATHS AT VARIOUS AGES.

	Urban Districts.	Rural Districts.
Under 1 year	19·3	12·5
1 and under 5 years	10·3	5·4
5 and under 15 years	4·0	2·8
15 and under 25 years	4·5	4·1
25 and under 65 years	34·5	26·2
Over 65 years	27·4	49·0
	100·0	100·0

The differences are even more marked than usual. Be the significance what it may, about one half the people who die in Rural Essex exceed the age of 65 years, whereas in the towns only about one-fourth of those who die attain the again of 65.

DEATHS FROM VARIOUS CAUSES.

1. CANCER.

The mortality from this disease still shows signs of increasing. In the Urban districts 1 person out of every 14 died from Cancer, and in the Rural districts 1 out of every 12. It must be remembered, however, that this apparent excess is entirely due to the larger proportion of middle-aged and elderly people in the country districts. When corrected so as to enable a fair comparison to be made it is found that the death-rate from Cancer in both the Rural and Urban districts is ·82 per 1,000 persons.

The actual numbers of deaths from Cancer during the last 10 years is given in Table XI., and the rate per 1,000 population in Table XII.

TABLE XI.

DEATHS RECORDED FROM CANCER SINCE 1900.

	Rural Districts.	Urban Districts.	Administrative County.
1900	215	312	527
1901	220	344	562
1902	266	316	582
1903	246	367	613
1904	213	433	646
1905	245	476	721
1906	226	504	730
1907	249	369	618
1908	251	561	812
1909	270	578	848

TABLE XII.

CANCER DEATH-RATE PER 1,000 POPULATION.

	Administrative County.	England and Wales.
1871—80	... ·48	... ·47
1881—90	... ·54	... ·59
1891—1900	... ·66	... ·75
1901—1905	... ·71	... ·86
1906	... ·75	... ·92
1907	... ·61	... ·90
1908	... ·81	... ·92
1909	... ·82	... Not yet published.

The only consolation which can be derived from this Table is that the mortality from Cancer in Essex is below that for England and Wales. Last year the mortality was higher than in any preceding year.

2. TUBERCULAR DISEASES.

In the Urban districts 632 persons died from phthisis and 289 from other tubercular diseases. In the Rural districts 181 died from phthisis and 79 died from other tubercular diseases. The death-rates compared with previous years are as under :—

TABLE XIII.

DEATH-RATES PER 1,000 POPULATION FROM TUBERCULAR DISEASES.

	From Phthisis.			From other Tubercular Diseases.		
	Essex Urban.	Essex Rural.	England and Wales.	Essex Urban.	Essex Rural.	England and Wales.
1901-5	·87	·83	1·21	·41	·365	·525
1906	·785	·65	1·15	·45	·34	·49
1907	·85	·81	1·14	·43	·32	·46
1908	·76	·76	1·11	·34	·39	·47
1909	·77	·71	...	·35	·31	...

The death-rate from consumption is much lower in Essex than in most other counties, and we may reasonably hope that the large amount of attention paid to the "white scourge" will lead to a marked diminution of the death-rate throughout the whole country.

During the year under consideration all "poor persons" suffering from phthisis were notified. Unfortunately the number notified during the year is not given in many reports. In fact some Medical Officers do not refer to the subject of Tuberculosis, but apparently in the majority of districts the notified cases are visited and the family supplied with suitable literature. Verbal instructions are also given and in a few instances pocket spittoons are provided for the patients. A few patients have been sent to institutions outside the County; there is no public institution for the reception of such cases in the County. At one, if not two workhouses, shelters have been erected in the grounds; at one a special ward has been prepared, but not been used as the patients refuse to be removed from home.

From the monthly returns of notifications it appears that 532 poor persons were notified in the Urban districts and 103 in the Rural, or 635 in the whole administrative County. Voluntary notification of other cases appears to be a failure; either medical men do not care to notify or the patient or their families object. Unless some well organised system of affording help, by the provision of sanatoria, or special clinics, is adopted in the County or in the large centres of population, medical opinion is that notification serves no useful purposes, and that the private practitioners can give all the advice necessary.

The districts in which the phthisis death-rate has exceeded 1 per 1,000 population are Barking, Buckhurst Hill, Clacton, Frinton, Grays, Leigh, and Southend.

In the following districts no death from consumption occurred during the year:— Burnham, Loughton, and Bumpstead (R.) (Too much stress must not be laid on statistics for a single year, especially in small districts, as in such districts the variations from year to year are often very great.)

3. THE SEVEN PRINCIPAL ZYMOTIC DISEASES.

Table XIV. gives the actual number of deaths which have occurred from the above diseases and Table XV. gives the death-rates calculated therefrom.

TABLE XIV.

DEATHS FROM THE SEVEN PRINCIPAL ZYMOTIC DISEASES.

					Urban Districts.	Rural Districts.	Administrative County.
Small-pox ...	...	...	...	...	0	0	0
Measles ...	...	...	..	...	166	30	196
Scarlet Fever ...	...	...	...	...	49	10	59
Whooping Cough ...	...	...	...	...	167	50	217
Diphtheria ...	...	...	..	...	107	13	120
Typhoid Fever	} Fevers	...	...	...	21	5	26
Puerperal Fever		...	...	...	16	1	17
Epidemic Diarrhoea ...	...	...	...	...	138	20	158
Totals ...	...	...	..	...	664	129	793

In the previous year 962 deaths occurred. The difference is practically due to diarrhoea being much less prevalent during 1909 than in 1908.

TABLE XV.

DEATH-RATES PER 1000 POPULATION FROM EACH OF THE SEVEN PRINCIPAL ZYMOTIC DISEASES, 1909.

				Small-pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria.	Fevers.	Diarrhoea.	Totals.
Urban Districts ...	...	...	...	·0	·20	·06	·205	·13	·045	·17	·81
Rural Districts ...	...	...	...	·0	·12	·04	·20	·05	·025	·08	·51
Administrative County ...	...	...	...	·0	·18	·055	·20	·11	·04	·15	·74
England and Wales ...	...	...	...	·0	·35	·09	·20	·14	·06	·28	1·12
Administrative County, 1890-1908 ...	...	..	..	·015	·30	·10	·25	·245	·145	·58	1·63

The zymotic death-rate therefore was less than half the average of the previous 19 years. The mortality from each disease, with the exception of whooping cough, was below that for England and Wales.

Rates exceeding 1·0 per 1,000 were recorded in the following districts :—Barking, East Ham, Epping, Maldon, Shoeburyness, Ongar (R.), and Orsett (R.) No deaths from infectious diseases occurred in Brightlingsea, Chingford, Frinton, Halstead, Walton-on-the-Naze, Wivenhoe, Belchamp (R.), Halstead (R.), Saffron Walden (R.),

and Stansted (R.) Too much stress must not be laid on statistics for a single year as the accidental variations, especially in small districts, are often considerable. The prevalence of most of these diseases in the different sanitary districts will be dealt with in a later section.

Influenza caused 137 deaths in the Urban districts and 62 in the Rural. This is nearly as many as in 1908, and, as in that year, there was a larger proportion of deaths from this disease in the Rural districts.

TABLE XVI.

INFLUENZA DEATHS AND DEATH-RATES.

		No. of Deaths.		Death-rates.
1904	...	88	...	·10
1905	...	113	...	·125
1906	...	148	...	·16
1907	...	170	...	·17
1908	...	207	...	·20
1909	...	199	...	·19
1909 Rural districts		62	...	·24
1909 Urban	„	137	...	·17

4. DEATHS FROM CERTAIN OTHER DISEASES.

Diseases of the heart and lungs caused 2,772 deaths. In the towns bronehitis causes more deaths than any other disease, whereas in rural areas heart disease is the most common cause of death.

TABLE XVII.

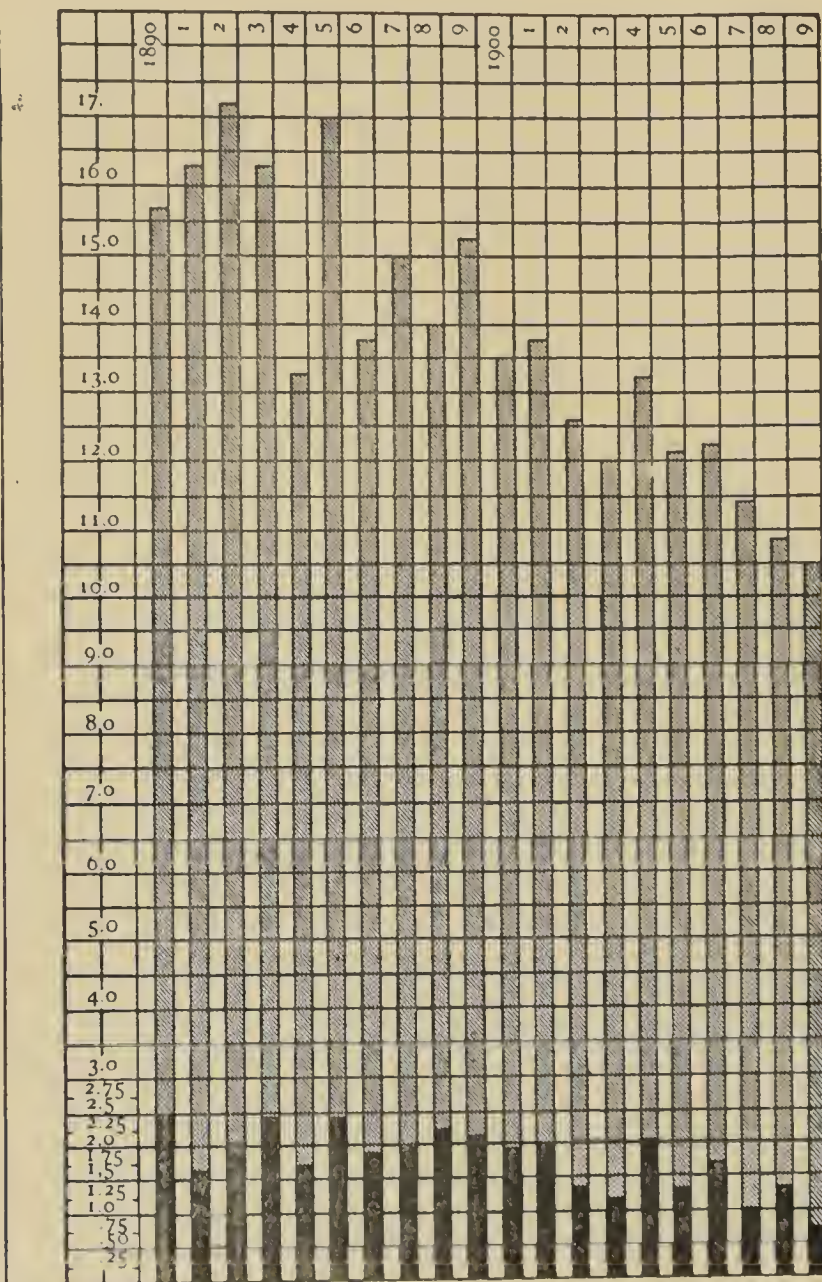
DEATHS AND DEATH-RATES FROM DISEASES OF THE HEART AND LUNGS.

					Urban Districts.		Rural Districts.	
					No. of Deaths.	Death-rates.	No. of Deaths.	Death-rates.
Bronchitis	...	...	...	...	750	·92	243	·95
Pneumonia	...	...	...	...	562	·69	155	·61
Other Lung Diseases	...	...	...	...	63	·08	25	·10
All Lung Diseases	...	..	...	...	1375	1·69	423	1·66
Heart Disease	...	...	...	...	561	·69	413	1·62

This Table shews that in the towns between two and three times as many persons die from diseases of the lungs as of diseases of the heart, whereas in the Rural areas as many die from heart diseases as from lung diseases. It does not follow,

however, that a greater proportion of the Urban population die from affections of the lungs, but that a much larger proportion of people in Rural districts die from affections of the heart. As explained in previous reports this is due to the preponderance of aged people in our villages, amongst whom heart failure is the commonest cause of death.

The appended diagram shews the marked decrease of the death-rate from all causes and from infectious diseases during the last 20 years.



COUNTY DEATH RATES.

Black from the seven principal Zymotic Diseases.

Shaded from "All other Causes."

TABLE XVIII.
BIRTH-RATES AND DEATH-RATES.

	URBAN DISTRICTS.	Birth-rate.	Infantile Mortality	Death-rates from			Medical Officers of Health.
				All causes.	Seven principal Zymotic Diseases	Phthisis.	
1	Barking	28.5	107	12.8	1.4	1.1	A. Bygott, M.D., D.P.H.
2	Braintree	24.3	23.0	13.6	.37	.56	Percy R. Stevens, L.R.C.P., M.R.C.S.
3	Brentwood	14	81.3	9.6	.86	.12	S. Frazer, L.R.C.P., L.R.C.S.
4	Brightingsea	18.6	44.4	10.0	0	.39	E. P. Dickin, M.D., C.M.
5	Buckhurst Hill	18.3	61.8	12.26	.56	1.3	Chas. R. Dykes, M.R.C.S., L.R.C.P.
6	Burnham	16.5	54.0	12.6	.3	0	W. C. P. Smith, M.R.C.S., L.R.C.P., D.P.H.
7	Chelmsford	18.45	52.51	8.05	.39	.73	H. W. Newton, M.R.C.S., L.R.C.P., D.P.H.
8	Chingford	22.5	40	9.5	0	.38	G. F. Fulcher, M.B., C.M.
9	Clacton	22.92	48.64	12.5	.37	1.8	Jno. W. Cook, M.D.
10	Colchester	23.85	89	11.8	.74	.90	W. Corfield, M.B., D.P.H.
11	East Ham	23.5	95.0	9.4	1.2	.65	Geo. Sowden, M.D., D.P.H.
12	Epping	22.5	90.0	10.1	1.1	.67	Trevor Fowler, L.R.C.P. & S.I., D.P.H.
13	Frinton	16.11	103.4	4.4	0	1.1	H. W. Godfrey, M.D.
14	Grays	26.0	87.0	11.4	.57	1.3	John A. Ward, M.D.
15	Halstead	18.85	104.35	14.09	0	.48	C. Gordon Roberts, M.A., M.B., B.C.
16	Harwich	32.05	104.4	12.2	.26	.61	H. Gurney, M.R.C.S., L.R.C.P.
17	Ilford	22.14	68.0	8.8	.51	.55	C. F. Stovin, M.A., L.S.A., D.P.H.
18	Leigh-on-Sea	22.7	44.8	10.5	.14	1.4	W. D. Watson, M.R.C.S., L.R.C.P.
19	Leyton	24.6	81.9	9.96	.97	.82	J. F. Taylor, M.R.C.S., D.P.H.
20	Loughton	19.1	69.5	9.2	.33	0	A. Butler Harris, M.A., M.B., B.Ch. Oxon.
21	Maldon	22.6	70.0	14.5	1.9	1.0	H. Reynolds Brown, M.D., C.M.
22	Romford	25.1	83.0	10.3	.48	.60	A. Wright, M.R.C.S.
23	Safron Walden	15.6	59	10.6	.15	.30	W. Armistead, M.B., F.C.S.
24	Shoeburyness	34.93	125.0	11.91	1.4	.61	M. H. Raper, M.D., D.P.H.
25	Southeast-on-Sea	18.59	74.62	10.29	.52	1.2	C. G. Pugh, M.D., D.P.H.
26	Waltham Holy Cross	20.21	63.1	11.61	.85	.57	J. Damer-Priest, M.R.C.S., D.P.H.
27	Walthamstow	24.66	83.3	8.8	.82	.78	J. J. Clarke, L.R.C.P.I., D.P.H.
28	Walton-on-the-Naze	21.12	160	11.40	0	.42	J. C. Brockwell, M.R.C.S., L.R.C.P.
29	Wanstead	15.6	46.9	7.2	.14	.14	F. Argles, M.R.C.P.Ed., M.R.C.S.
30	Witham	16.3	101.7	13.5	.82	.82	K. C. Gimson, M.B., B.Ch.
31	Wivenhoe	13.66	73.1	8.33	0	.66	G. Pender-Smith, L.S.A.
32	Woodford	21.1	59.4	8.2	.35	.60	W. G. Groves, M.R.C.S.
	Means ...	22.79	82.9	9.98	.79	.77	

TABLE XVIII.—Continued.
BIRTH-RATES AND DEATH-RATES.

RURAL DISTRICTS.			Birth-rate.	Infantile Mortality	Death-rates from			Medical Officers of Health.
					All causes.	Seven principal Zymotic Diseases.	Phthisis.	
1	Belcham	...	18·8	33·0	13·0	0	1·0	J. Sinclair Holden, M.D.
2	Billericay	...	25·7	47·1	11·5	·6	·7	D. Wells, M.B., CH.B.
3	Braintree	...	19·9	62·6	13·8	·05	·6	H. G. K. Young, M.R.C.S., L.R.C.P.
4	Bumpstead	...	24·3	182	20·3	·8	·0	Wm. Arnistead, M.B., F.C.S.
5	Chelmsford	...	21·6	74·0	11·85	·17	·9	John C. Thresh, M.D., D.Sc., D.P.H.
6	Dunmow	...	21·1	95·06	14·24	·66	·71	Edmund E. Goodbody, M.D.
7	Epping	...	19·1	54·9	12·0	·56	·36	Trevor Fowler, L.R.C.P. & S.I., D.P.H.
8	Halstead No. 1.	...	16·25	51·2	9·71	0	·42	J. Henry Ashworth, M.D.
9	Halstead No. 2.	...	20·54	25·6	12·9	0	·17	J. B. Bromley, M.R.C.S.
10	Lexden and Winstree	...	21·06	45·02	12·29	·09	·8	Jno. W. Cook, M.D.
11	Maldon	...	22·3	64·5	14·0	·18	·8	John C. Thresh, M.D., D.Sc., D.P.H.
12	Ongar	...	20·75	95·0	15·45	1·3	1·0	W. R. S. Roberts, M.B., Ch.B.
13	Orsett	...	27·20	95·0	10·9	1·1	·7	W. Allingham, M.R.C.S., L.R.C.P.
14	Rochford	...	27·1	66·9	12·2	·89	·71	M. H. Raper, M.D.
15	Romford	...	26·6	88·9	10·9	·74	·78	Alfred Wright, M.R.C.S.
16	Saffron Walden	...	23·8	62	18·2	0	·8	Wm. Arnistead, M.B., F.C.S.
17	Stansted	...	21·4	60·8	13·0	0	·29	R. A. Dunn, M.D., D.Hy.
18	Tendring	...	20·84	73·27	12·2	·26	·58	Jno. W. Cook, M.D.
Total ...			20·16	79·2	12·57	·50	·70	

SECTION II.

PREVALENCE OF INFECTIOUS DISEASE.

TABLE XIX.

TOTAL NUMBER OF CASES OF INFECTIOUS DISEASES NOTIFIED
DURING THE 10 YEARS, 1900-1909.

Year.	Small-pox	Scarlet Fever.	Diphtheria and Membranous Croup.	Fevers—Typhoid and Continued.	Puerperal Fever.	Erysipelas.	Totals.	Rate per 1,000 population.
1900	18	2,702	2,395	840	54	718	6,727	8·3
1901	227	2,961	2,628	790	40	716	7,362	9·1
1902	1334	3,251	2,017	987	44	857	8,490	9·9
1903	96	2,528	1,659	589	42	750	5,664	6·4
1904	112	3,534	1,764	453	51	812	6,726	7·4
1905	3	4,563	1,453	398	45	863	7,325	7·8
1906	0	4,434	1,869	366	56	833	7,558	7·8
1907	0	5,138	1,918	243	41	758	8,098	8·0
1908	3	4,490	1,767	266	39	738	7,303	7·0
1909	0	3,645	1,371	161	42	688	5,907	5·5
Average ...	179	3,725	1,884	509	45	773	7,116	7·7

In proportion to the population far fewer cases of infectious disease were notified during 1909 than in any previous year since notification commenced. With the exception of puerperal fever each disease shows a decrease. The enormous and continuous decline in the number of cases of typhoid fever is particularly noticeable.

The number of cases of each disease notified is sent monthly to the County Medical Officer, and Table XX. is based upon these monthly returns. When the totals are compared with the annual returns a marked discrepancy is observed. The two totals and the differences are as under :—

RAINFALL FOR YEAR
IN DIFFERENT
DISTRICTS.

TABLE XX.
METEOROLOGICAL DATA AND PREVALENCE OF INFECTIOUS DISEASES
For the Year ending December 31st, 1909.

Month.	METEOROLOGICAL DATA.					INFECTIOUS DISEASES NOTIFIED.					TOTAL.
	Mean Tempera- ture.	Mean Daily Range.	Relative Humidity	No. of Rainy Days.	Rainfall.	Small- pox.	Diphth- eria and Group.	Fevers.	Scarlet Fever.	Erysipe- las.	
January...	36.7	11.5	92	11	.78	0	129	11	369	63	572
February	35.5	14.7	88	9	.808	0	160	13	305	49	527
March ...	37.8	12.0	86	24	2.965	0	116	10	343	61	530
April ...	47.4	22.3	70	10	1.925	0	123	13	293	70	499
May ...	50.3	23.9	65	9	.98	0	87	10	311	50	458
June ...	53.5	15.9	80	18	3.77	0	98	8	309	61	476
July ...	59.7	12.4	76	16	3.24	0	141	9	390	71	611
August ...	57.0	15.0	77	10	2.48	0	82	25	218	49	374
September	54.6	15.2	87	21	2.59	0	120	29	282	42	473
October ...	52.1	12.6	89	24	5.02	0	131	21	392	52	596
November	40.5	12.2	90	12	1.10	0	117	18	276	61	472
December	38.9	10.9	91	20	3.08	0	101	23	255	76	455
Means & Totals	47.0	15.4	82.6	184	28.74	0	1405	190	3743	705	6043

Average ... 25.8

1908 ... 20.2
1907 ... 20.9
1906 ... 22.6
1905 ... 19.7
1904 ... 17.8
1903 ... 33.6
1902 ... 19.8
1901 ... 18.6
1900 ... 20.9

		Totals from Monthly Tables.		Totals from Annual Reports.		Difference.
Scarlet Fever	...	3,743	...	3,645	...	—98
Diphtheria	...	1,405	...	1,371	...	—34
Fevers	...	190	...	203	...	+13
Erysipelas	...	705	...	688	...	—17
		—		—		—
Total	...	6,043	...	5,907	...	—136
		—		—		—

Absolute concordance can scarcely be expected as occasionally a notification may be withdrawn, or in the annual returns corrections may be made for notification of aliens in institutions, etc., but these do not apparently account for the whole of the discrepancy, and especially the discrepancies in certain districts. Possibly a little more care is required in making the monthly returns. The difference of the totals is no less than 136, yet fortunately in a population of over one million the rate per thousand population is small and does not affect our deductions. Taking the higher figures as being correct the rate per 1,000 population is 5·64, as against 5·5 on the lower figures. Curiously enough the only diseases which show an increase in the annual returns are the fevers (typhoid and puerperal). If the monthly figures are correct the decreased prevalence of typhoid has been even more marked than the annual figures suggest.

The largest number of cases was notified in July (661) and the smallest (374) in August, there having been a remarkable diminution in the number of cases of scarlet fever notified during that month.

The rainfall was above the average. During the last 10 years the rainfall has varied from 17·8 inches in 1904 to 33·6 inches in 1903, in other words the maximum rainfall was nearly twice the minimum. The average for the 10 years was 22·0 inches. The district variations are very considerable, the South-Eastern area generally having the lowest rainfall and the North-Western the highest. Usually, at Chelmsford, the rainfall is about the average for the County, but in 1909 it considerably exceeded the average.

In proportion to the population the largest number of cases of infectious disease was notified in Loughton, Brentwood, Romford and Barking Urban Districts, and in Rochford, Epping and Billericay Rural Districts. *Vide* Table XXI.

SMALLPOX.

No case occurred during the year.

SCARLET FEVER.

The largest proportion of cases occurred in Loughton and Brentwood. Burnham and Halstead No. 2 Rural district are the only areas in which no case was notified. In 31 districts no deaths were attributable to this disease. The type of disease appears to have been very mild, especially in the Rural districts. The deaths averaged 17 per 1,000 cases in the towns and 13 in the country, giving an average of 16 for the whole County.

TABLE XXI.

DISTRIBUTION THROUGHOUT THE COUNTY OF COMPULSORILY
NOTIFIABLE INFECTIOUS DISEASES.

	No. of Cases Notified.	No. per 1,000 In- habitants.	Diseases most prevalent.
Urban Districts.			
Barking	285	9.3	Scarlet Fever
Braintree	7	1.3	Diphtheria
Brentwood	86	9.6	Scarlet Fever
Brightlingsea	39	7.7	"
Buckhurst Hill	25	4.7	"
Burnham	2	.6	Diphtheria
Chelmsford	40	2.2	Scarlet Fever
Chingford	41	5.3	"
Clacton	62	7.6	Diphtheria
Colchester	142	3.3	Scarlet Fever
East Ham	966	6.4	Scarlet Fever and Diphtheria
Epping	16	3.6	Diphtheria
Frinton	2	1.1	Scarlet Fever
Grays	91	5.7	"
Halstead	6	.9	"
Harwich	39	2.6	Diphtheria
Ilford	471	5.9	Scarlet Fever and Diphtheria
Leigh-on-Sea	46	6.7	Scarlet Fever
Leyton	823	6.8	Scarlet Fever and Diphtheria
Loughton	67	11.0	Scarlet Fever
Maldon	28	4.8	Scarlet Fever and Enteric Fever
Romford	158	9.5	Scarlet Fever and Diphtheria
Saffron Walden	7	1.0	Scarlet Fever
Shoeburyness	21	4.3	"
Southend-on-Sea	279	4.5	Scarlet Fever and Diphtheria
Waltham Holy Cross	34	4.8	Scarlet Fever
Walthamstow	814	5.9	"
Walton-on-the-Naze	4	1.6	"
Wanstead	35	2.6	Scarlet Fever and Diphtheria
Witham	12	3.3	Scarlet Fever
Wivenhoe	4	1.3	Diphtheria
Woodford	61	3.0	Scarlet Fever and Diphtheria
Total	4704	5.7	
Rural Districts.			
Belchamp	17	3.5	Scarlet Fever
Billericay	141	8.0	"
Braintree	33	1.8	"
Bumpstead	3	1.3	"
Chelmsford	47	2.1	"
Dunmow	42	2.6	"
Epping	111	8.1	Diphtheria and Scarlet Fever
Halstead, No. 1	13	2.7	Erysipelas
Halstead, No. 2	5	.8	"
Lexden and Winstree	60	2.9	Scarlet Fever
Maldon	37	2.3	"
Ongar	54	5.1	"
Orsett	184	7.5	"
Rochford	161	9.6	"
Romford	155	7.2	Scarlet Fever and Diphtheria
Saffron Walden	15	1.5	Scarlet Fever
Stansted	3	.4	Erysipelas
Tendring	122	5.4	Scarlet Fever and Enteric Fever
Total	1203	4.7	

In the Urban districts over 67 per cent. of the notified cases were removed to isolation hospitals, in the Rural districts only 43 per cent. were removed. The proportion of removals is increasing in the former and decreasing in the latter.

The following Table shows the relative incidence of the disease in recent years, the varying case mortality and the proportion of cases removed to hospitals in the Urban and Rural districts.

TABLE XXII.

	Urban Districts			Rural Districts.		
	Cases per 1,000 pop.	Deaths per 100 cases.	Per cent. removed to hospital.	Cases per 1 000 pop.	Deaths per 100 cases.	Per cent. removed to hospital.
1901	4.3	1.4	39	2.9	1.5	28
1902	4.2	1.3	?	2.8	2.0	?
1903	3.3	2.0	?	1.7	2.6	
1904	4.3	1.8	52	2.7	1.8	49
1905	5.3	1.7	44	3.7	2.1	49
1906	5.0	2.1	55	3.2	2.4	40
1907	5.8	2.0	55	3.0	2.5	53
1908	4.6	1.7	62	3.3	2.4	48
1909	3.5	1.7	67	3.1	1.3	43

Table XXIII. gives detailed information regarding prevalence, severity, &c. etc., in each sanitary district. At Brentwood the disease became epidemic about May and many more cases would have been removed to hospital had there been accommodation available. In Loughton many anomalous cases occurred which were not recognized until other members of the family had become infected. Early in June, 19 cases were notified, and no less than 10 of these were already desquamating.

DIPHTHERIA.

The prevalency of this disease continues to decline, the number of cases recorded during the year being fewer than in any previous year. The virulency has been a minimum, 8.9 deaths per 100 cases, as against 12 in 1908. In last year's report it was shown that the proportion of deaths to cases had shewn a tendency to increase, and it was suggested that antitoxin was not being so extensively used. There can be no doubt that the use of antitoxin is the cause of the lowered death-rate from diphtheria and also, in part, for its decreased prevalency, and it will be a great mistake if the facilities for obtaining the remedy in a fresh and active condition at a very short notice are withdrawn. As fewer cases of diphtheria occur there is less demand for the remedy, and consequently less incentive to the practitioner to keep a supply on hand, since its value depreciates on keeping.

Many sanitary authorities make arrangements for supplying the remedy, free of charge, when required for persons of the poorer class, and in large districts wher

TABLE XXIII.

SCARLET FEVER.

DISTRICTS.	No. of cases notified.	No. of deaths.	No. of cases removed to hospital.	Cases per 1,000 population.	Deaths per 1,000 population.	Deaths per 100 cases.	Percentage of cases removed to hospital.
Urban Districts.							
Barking	188	2	162	6.1	.06	1.0	86.0
Braintree	1	0	0	.18	0	0	0
Brentwood	78	2	44	8.7	.22	2.5	56.4
Brightlingsea	38	0	0	7.5	0	0	0
Buckhurst Hill	15	0	12	2.8	0	0	80.0
Burnham	0	0	0	0	0	0	...
Chelmsford	34	0	26	1.9	0	0	76.4
Chingford	28	0	9	3.6	0	0	32.1
Clacton	14	1	10	1.7	.12	7.1	71.4
Colchester	82	1	68	1.9	.02	1.2	82.9
East Ham	576	15	393	3.8	.10	2.6	68.2
Epping	6	0	5	1.3	0	0	83.3
Frinton-on-Sea	2	0	0	1.1	0	0	0
Grays	63	0	26	4.0	0	0	41.2
Halstead	5	0	4	.81	0	0	80.0
Harwich	7	0	7	.61	0	0	100.
Ilford	267	0	186	3.3	0	0	79.6
Leigh-on-Sea	37	0	0	5.3	0	0	0
Leyton	491	8	301	4.0	.06	1.6	61.3
Loughton	65	2	51	10.8	.33	3.0	78.7
Maldon	10	1	10	1.7	.17	10.	100.
Romford	90	2	73	5.4	.12	2.2	81.1
Saffron Walden	4	1	3	.61	.15	.25	75.0
Shoeburyness	12	0	0	2.4	0	0	0
Southend-on-Sea	183	3	156	2.9	.04	1.6	85.3
Waltham Holy Cross	23	0	21	3.2	0	0	91.3
Walthamstow	506	11	345	3.7	.08	2.1	68.1
Walton-on-the-Naze	4	0	0	1.6	0	0	0
Wanstead	15	0	10	1.1	0	0	66.6
Witham	6	0	0	1.3	0	0	0
Wivenhoe	1	0	0	.33	0	0	0
Woodford	25	0	10	1.2	0	0	40.0
Total	2876	49	1932	3.5	.06	1.7	67.1
Rural Districts.							
Belchamp	13	0	0	2.6	0	0	0
Billericay	85	2	60	4.9	.11	2.3	70.5
Braintree	16	0	15	.88	0	0	93.7
Bumpstead	2	0	0	.9	0	0	0
Chelmsford	36	0	27	1.6	0	0	75.0
Dunmow	24	1	13	1.5	.06	4.1	54.0
Epping	45	0	37	3.1	0	0	82.2
Halstead, No. 1	4	0	0	.84	0	0	0
Halstead, No. 2	0	0	0	0	0	0	0
Lexden and Winstree	42	0	0	2.9	0	0	0
Maldon	19	1	7	1.1	.06	5.2	36.8
Ongar	37	0	0	3.5	0	0	0
Orsett	131	1	90	5.3	.04	.7	68.7
Rochford	121	1	0	7.2	.05	.8	0
Romford	96	2	77	3.9	.08	2.0	80.2
Saffron Walden	7	0	5	.74	0	0	71.4
Stansted	0	0	0	0	0	0	0
Tendring	91	2	0	4.0	.09	2.2	0
Total	769	10	331	3.1	.03	1.3	43.0

there is a fairly steady demand this is to be recommended. In small districts the fluid may be kept on hand so long that its virtues may become impaired, and therefore "stocking" is not recommended, save when an outbreak appears imminent. A telegram to London always ensures a fresh supply being sent by rail or special post or special messenger, and it is better for an Authority to pay such expenses than trust to a preparation which may have lost its potency. At one time a supply was kept at the County Public Health Laboratory, but the demand fell off to such an extent that a quantity had to be thrown away, and none has been stocked since.

The case mortality for each year since 1895 is given in the following Table, and for comparative purposes the corresponding rates for scarlet fever are included. It will be observed that the mortality from diphtheria was high in 1895 (and up to this date always had been high), but that with the introduction of antitoxin in that year the fatality decreased as the remedy became more largely used. There has been no such continued decrease in the case of scarlet fever.

TABLE XXIV.

		Deaths per 100 cases of Diphtheria.		Deaths per 100 cases of Scarlet Fever.
1895	...	20.0	...	2.2
1896	..	17.0	...	1.76
1897	...	17.1	...	1.66
1898	...	16.6	...	1.56
1899	...	14.3	...	1.2
1900	...	13.5	...	.96
1901	...	11.4	...	1.4
1902	...	10.6	...	1.5
1903	...	8.9	...	2.2
1904	.	9.2	...	1.8
1905	...	9.7	...	1.8
1906	...	12.9	...	2.2
1907	...	10.6	...	2.1
1908	...	11.6	...	1.8
1909	...	8.9	...	1.6

Usually the fatality has been greater in Rural than in Urban districts, but during last year exactly the reverse was the case, 9.2 per cent. of the cases being fatal in the towns and only 5.9 per cent. in the country.

In 5 Urban areas and 4 Rural no case occurred, and in 26 districts not a single death from diphtheria is reported. About 72 per cent. of the Urban patients were removed to hospital, and 56 per cent. of the Rural patients.

In proportion to the population, the largest number of cases occurred in Clacton, Romford, Billericay (R.), Epping (R.) and Romford (R.).

BILLERICAY. The Medical Officer of Health says: "Of the 23 cases admitted into the Hospital, 16, I regret to say, had not been injected before being sent in. To those who have to deal with a large number of cases of diphtheria the value of the free use of antitoxin very early in the case is evident and convincing, tending as

TABLE XXV.

DIPHTHERIA AND MEMBRANOUS CROUP.

DISTRICTS.	No. of cases notified.	No. of deaths	No. of cases removed to hospital.	Cases per 1,000 population.	Deaths per 1,000 population.	Deaths per 100 cases.	Percentage of cases removed to hospital.
Urban Districts.							
Barking	54	7	40	1·7	·23	12·9	74·0
Braintree	4	2	0	·75	·37	50·	0
Brentwood	4	0	2	·44	0	0	50
Brightlingsea	0	0	0	0	0	0	0
Buckhurst Hill	7	1	5	1·3	·18	14·2	71·4
Burnham	2	0	0	·6	0	0	0
Chelmsford	3	1	3	·11	·05	33·3	100·
Chingford	6	0	3	·77	0	0	50·0
Clacton	42	2	39	5·1	·24	4·7	92·8
Colchester	29	2	16	·69	·04	6·8	55·2
East Ham	271	24	224	1·8	·16	8·8	82·6
Epping	8	0	8	1·8	0	0	100·0
Frinton-on-Sea	0	0	0	0	0	0	0
Grays	18	0	6	1·7	0	0	33·3
Halstead	0	0	0	0	0	0	0
Harwich	17	2	15	1·4	·17	11·7	88·2
Ilford	132	11	87	1·6	·13	8·3	65·9
Leigh-on-Sea	1	0	0	·14	0	0	0
Leyton...	201	27	122	1·6	·22	13·4	60·6
Loughton	0	0	0	0	0	0	0
Maldon	3	0	2	·52	0	0	66·6
Romford	42	4	29	2·5	·25	9·5	69·0
Saffron Walden	1	0	1	·15	0	0	100·0
Shoeburyness	5	1	0	1·0	·20	20·	0
Southend-on-Sea	74	4	55	1·2	·06	5·4	74·3
Waltham Holy Cross	7	0	7	1·0	0	0	100·0
Walthamstow	183	14	144	1·3	·10	7·6	78·4
Walton-on-the-Naze	0	0	0	0	0	0	0
Wanstead	12	1	4	·89	·07	8·3	33·3
Witham	3	1	0	·82	·27	33·3	0
Wivenhoe	2	0	0	·66	0	0	0
Woodford	21	3	14	1·0	·14	14·3	66·6
Total	1152	107	826	1·4	·13	9·2	71·7
Rural Districts.							
Belchamp	2	0	0	·43	0	0	0
Billericay	34	0	23	1·9	0	0	67·6
Braintree	8	1	2	·44	·05	12·5	25·0
Bumpstead	0	0	0	0	0	0	0
Chelmsford	7	1	3	·31	·04	14·2	42·8
Dunmow	6	1	3	·38	·06	16·6	50·0
Epping	47	3	41	3·3	·21	6·3	87·2
Halstead, No. 1	0	0	0	0	0	0	0
Halstead, No. 2	0	0	0	0	0	0	0
Lexden and Winstree	4	0	0	·19	0	0	0
Maldon	10	0	1	·62	0	0	10·0
Ongar	7	0	0	·66	0	0	0
Orsett	32	3	21	1·3	·12	9·3	65·6
Rochford	7	2	0	·41	·14	28·5	0
Romford	42	2	27	1·7	·08	4·7	64·2
Saffron Walden	3	0	2	·31	0	0	66·6
Stansted	0	0	0	0	0	0	0
Tendring	10	0	0	·44	0	0	0
Total	219	13	123	·85	·05	5·9	56·1

it does, to not only lessen the severity of the disease, but also to prevent a greater mortality. I attribute our small mortality in the Isolation Hospital to the free use of antitoxin." He also expresses the opinion that the Local Government Board should make arrangements for the supply of it to any medical man for either parish or club patients. Apparently he is unaware that Sanitary Authorities are permitted to do this already with the permission of the Local Government Board.

There is very little doubt that the prevalence and mortality from diphtheria could be much further reduced were better facilities afforded for the prompt use of antitoxin.

TYPHOID FEVER.

The extraordinary decrease in the prevalence of this disease is shewn in Table XIX. Instead of having a high death-rate from the disease, as was the case a few years ago, the County has now an exceedingly low death-rate, and last year it was far the lowest yet recorded.

The disease was of a more severe type in the Urban districts than in the Rural, but a larger proportion of cases occurred in the Rural districts. In 13 Urban districts and 10 Rural districts not a single case occurred and in 36 districts no death occurred.

In many previous reports attention has been called to the excessive proportion of cases of typhoid fever which occurred in the districts bordering the Thames. This area usually had a death-rate from this disease two or three times as high as that of the rest of the county. It still remains higher than in the county generally but the fall has been so great in recent years that it can no longer be called excessive. In fact the proportion of cases to population in the Thames area, for the first time, does not exceed that for the remainder of the county, but apparently the type has been more severe, hence the higher death-rate. The continuous improvement is a matter for congratulation, although it is impossible to say definitely to what it may be due. There can be no question, however, that the greater care exercised to prevent the collection and sale of shell-fish from polluted foreshores has been the most important factor. Possibly improved water supplies and improved sanitary conditions have also assisted, but the effect of these can only have been small compared with that of shell-fish protection. Years ago it was pointed out in these reports that the typhoid incidence was greatest where polluted foreshores were nearest, but how the two were related was then in doubt. The discovery of the part played by shell-fish in disseminating typhoid fever has, however, confirmed and explained the relationship.

With the practical disappearance of typhoid from South-East Essex the only blot on the health escutcheon of the county has been removed.

The following Table shews the gradual and continuous fall in typhoid fever prevalence during the last 10 years. Probably it is, in all respects, the most interesting Table ever published in these reports, since it shews that for every death from typhoid fever which occurred last year, seven or eight deaths would have occurred had the conditions been the same as in 1901. Table XXVII. shews the number of cases, etc., which occurred in each sanitary district.

TABLE XXVI.

TYPHOID FEVER CASE-RATE AND DEATH-RATE IN THE THAMES AREA
AND IN THE REMAINDER OF THE COUNTY.

Year.	Case-rates per 1,000 population.		Death-rates per 1,000 population.	
	Thames Area.	Rest of County.	Thames Area.	Rest of County.
1891—1900	1·9	·83	·28	·12
1901	1·9	·60	·26	·10
1902	2·3	·72	·24	·12
1903	1·2	·47	·20	·08
1904	·7	·41	·12	·07
1905	·63	·35	·11	·06
1906	·51	·32	·08	·06
1907	·6	·20	·05	·023
1908	·32	·22	·041	·043
1909	·15	·15	·033	·020

An excessive number of cases of typhoid fever occurred in the following districts :
—Leigh-on-Sea, Maldon, Shoeburyness, Billericay (R.) and Tendring (R.)

LEIGH-ON-SEA. Eight cases occurred here out of a population of about 7,000, and seven of the patients attacked were children. No evidence of infection by shell-fish was obtained but "there was some evidence of a possible source of infection through some sanitary defect."

MALDON. Eight cases occurred in this small borough, but the cause is not referred to.

SHOEBURYNESS. The four cases which occurred here are not attributed to shell-fish. One occurred "in a neighbourhood in which enteric was present," the man attacked had been opening up the drains.

BILLERICAY. Out of the 11 cases notified here, 7 occurred in the Asylum, and are not therefore due to any defects of administration in the district. It is notorious that typhoid fever outbreaks are common in asylums even where the water supplies and sanitary conditions are perfect. The probability is that they are due to "carrier" cases.

TENDRING. Fifteen cases occurred in this district. Two were due to shell-fish. The other 13 occurred at Little Oakley and Ramsey, "in both parishes caused by bad water."

The Medical Officer for Southend deals fully with the decline of typhoid fever in that Borough and shews that since 1893 the case-rate per 1,000 population has gradually fallen from 9·7 to ·016, and in the year under consideration only one indigenous case occurred and only one case was imported, and both recovered, so

that the death-rate which was 1·8 per 1,000 in 1893 was last year *nil*. The following quotations from his report will be read with interest:—

“ Although the consumption of polluted shell-fish was unquestionably the main cause of the excessive prevalence of typhoid fever in past years, it is possible that other factors, even now not definitely recognised may have assisted towards the same end, but whether this be so or not they are certainly not now operative as the typhoid incidence in the Borough is far below the average for other English towns, whether inland or on the coast.”

“ With increased knowledge on the part of the public and with the greater attention now paid by shell-fish merchants to the necessity of purifying before sale all oysters, etc., obtained from doubtful sources, one is justified in the hope that in the future cases of typhoid fever will only exceptionally occur, and that deaths from the disease will be correspondingly rare.”

“ Some misguided individuals will doubtless continue to eat, before purification, shell-fish gathered surreptitiously from the foreshore and a proportion of these will inevitably pay the penalty for their folly. . . . Typhoid carriers, that is, persons who, although seemingly in good health long after an attack of typhoid fever excrete from time to time typhoid bacilli, may give rise to occasional cases.”

PUERPERAL FEVER.

This disease will be again referred to under the section dealing with the Administration of the Midwives Act. The 42 cases notified occurred in 22 different districts. In 30 districts no case was notified.

It is to be regretted that Medical Officers of Health do not more frequently refer to this disease. Why, with the supervision of midwives, the disease shews no signs of decreasing requires explanation. The expense of this supervision was to be justified by the decreased number of such cases. In this county there is no proof that an excessive number of cases occur in the practice of midwives. One Medical Officer of Health, remarking on the fact that out of 3,418 births only one case of puerperal fever had been notified, adds: “either modern antiseptic methods, as applied to midwifery practice, are singularly successful, or what is more probable, a number of mild cases of puerperal infection which do occur are not notified.”

GRAYS. The one case which occurred here was attended by an *unregistered* midwife.

SOUTHEND. One case was attended by a registered midwife, the other was not attended by either a medical man or midwife.

EPPING. Three cases occurred here, but under what condition is not stated. Dr. Fowler, however, says, “As most cases of puerperal fever among the poor are traceable to careless and ignorant nursing, none can say that this (The Midwives Act) is anything but a merciful and necessary Act.”

TABLE XXVII.

TYPHOID, CONTINUED, AND PUERPERAL FEVERS.

DISTRICTS.	Typhoid and Continued Fevers.							Puerperal Fever.	
	No. of cases notified.	No. of deaths.	No. of cases removed to hospital.	Cases per 1,000 population.	Deaths per 1,000 population.	Deaths per 100 cases.	Percentage of cases removed to hospital.	No. of cases notified.	No. of deaths.
Urban Districts.									
Barking ...	9	2	7	·29	·06	22·2	77·7	4	1
Braintree ...	0	0	0	0	0	0	0	0	0
Brentwood ...	1	0	1	·11	0	0	100·	1	0
Brightlingsea ...	0	0	0	0	0	0	0	0	0
Buckhurst Hill ...	2	0	1	·37	0	0	50·0	1	0
Burnham ...	0	0	0	0	0	0	0	0	0
Chelmsford ...	1	1	0	·05	·05	100·	0	0	0
Chingford ...	0	0	0	0	0	0	0	0	0
Clacton ...	1	0	1	·12	0	0	100·	0	0
Colchester ...	5	0	2	·11	0	0	40·0	4	2
East Ham ...	10	5	8	·06	·03	50·	80·0	1	0
Epping ...	0	0	0	0	0	0	0	0	0
Frinton-on-Sea ...	0	0	0	0	0	0	0	0	0
Grays ...	3	0	0	·18	0	0	0	1	0
Halstead ...	0	0	0	0	0	0	0	0	1
Harwich ...	4	1	4	·35	·08	25·	100·	0	0
Ilford ...	7	1	3	·08	·01	14·2	42·8	2	2
Leigh-on-Sea ...	8	1	0	1·1	·14	12·5	0	0	0
Leyton ...	21	3	11	·17	·02	14·7	52·3	10	6
Loughton ...	0	0	0	0	0	0	0	0	0
Maldon ...	8	2	4	1·3	·34	25·	50	1	1
Romford ...	3	0	1	·17	0	0	33·3	1	1
Saffron Walden ...	0	0	0	0	0	0	0	0	0
Shoeburyness ...	4	1	0	·82	·20	25·	0	0	0
Southend-on-Sea ...	2	0	2	·03	0	0	100·0	1	1
Waltham Holy Cross ...	1	0	1	·14	0	0	100·	0	0
Walthamstow ...	13	2	5	·09	·01	15·3	30·7	0	0
Walton-on-the-Naze ...	0	0	0	0	0	0	0	0	0
Wanstead ...	0	0	0	0	0	0	0	3	0
Witham ...	0	0	0	0	0	0	0	0	0
Wivenhoe ...	0	0	0	0	0	0	0	0	0
Woodford ...	6	2	4	·30	·10	33·3	66·6	2	1
Total ...	109	21	55	·13	·025	19·2	50·5	31	16
Rural Districts.									
Belchamp ...	0	0	0	0	0	0	0	0	0
Billericay ...	11	0	4	·62	0	0	36·3	1	0
Braintree ...	3	0	2	·16	0	0	66·6	0	0
Bumpstead ...	0	0	0	0	0	0	0	0	0
Chelmsford ...	0	0	0	0	0	0	0	1	0
Dunmow ...	0	0	0	0	0	0	0	1	0
Epping ...	2	1	0	·14	·07	50	0	3	0
Halstead, 1 ...	0	0	0	0	0	0	0	0	1
Halstead, 2 ...	0	0	0	0	0	0	0	0	0
Lexden & Winstree ...	0	0	0	0	0	0	0	0	0
Maldon ...	3	0	1	·18	0	0	33·3	0	0
Ongar ...	0	0	0	0	0	0	0	1	0
Orsett ...	8	0	4	·32	0	0	50	0	0
Rochford ...	6	2	0	·35	·14	33·3	0	1	0
Romford ...	0	0	0	0	0	0	0	3	0
Saffron Walden ...	2	0	0	·21	0	0	0	0	0
Stansted ...	0	0	0	0	0	0	0	0	0
Tendring ...	15	2	13	·67	·09	13·3	86·6	0	0
Total ...	50	5	24	·19	·019	10·	48	11	1

The average number of cases notified for the 7 years before and since the Midwives Act came in force are as under :—

		Average number of cases.		Per 1,000 population.
1896—1902	...	45	...	·06
1903—1909	...	45	...	·05

In proportion to the population there has been a slight decline in the case-rate. The deaths, etc., during the same periods were—

		Average in Urban Districts.		Average in Rural Districts.		Per 1,000 population.
1896—1902	..	16	...	5	...	·027
1903—1909	...	17	...	4·4	...	·023

The variations from year to year are very great. The smallest number registered was 16, in 1902 and 1904, and the highest number 29, in 1899 and 1907.

OTHER INFECTIOUS DISEASES.

These diseases are more especially such as affect children of school age and which more frequently necessitate school closure or interference with school attendance. The more important are measles, whooping cough and mumps. Beyond closing schools little if anything is done to arrest the spread of these diseases. Every school is supplied with books of forms for notifying all suspicious cases of illness to the local Medical Officer of Health and the County School Medical Officer. It has taken sometime to get the teachers to send the forms and there is reason to believe that this is often neglected until the cases are numerous and the attendance seriously reduced. A Conference was held at the London Offices of the County Council between Members and Officers of the Education Committee and Medical Officers of Health. There was a general concensus of opinion that practically nothing was being done or could be done to prevent the spread of these diseases. School closure takes place, almost invariably too late to be of any use as a preventive measure, and even early closure was believed only to prolong the period of epidemic prevalence and to have no effect in reducing the number of children ultimately attacked. After discussion it was decided that where a Medical Officer of Health deemed the closure of a school necessary for preventing the spread of infection he should obtain an order from the Sanitary Authority, but where closure was merely desired because of the low average attendance it should be done by the County School Medical Officer.

There was much difference of opinion about the exclusion of "contacts," members of infected families. Some would exclude all members of such family, others would exclude the younger children only, etc. Formal orders for exclusion are but rarely given, advice is tendered to the teachers, and in some districts leaflets relating to the prevalent disease are distributed.

The question whether Medical Officers of Health had any duties to discharge towards persons suffering from itch, ringworm, etc., was discussed, and whether they could take any steps to prevent such infectious diseases extending amongst school

children. No definite decision was arrived at, but most of the Medical Officers of Health were of opinion that they had no duties in relation to such diseases.

ISOLATION HOSPITALS.

There are 15 Hospitals in the County, serving 25 Sanitary Districts, which were wholly or in part erected from plans approved by the Local Government Board. Several of these have additional wards of a more or less temporary character, which are used when occasion requires. The number of these beds can be approximately estimated by deducting the number of beds on which the County Council gives a grant, from the total number of beds. *Vide* Table XXIX.

The Orsett Joint Hospital serves Grays Urban and Orsett Rural districts. Population 40,000.

The Waltham Joint Hospital serves Buckhurst Hill, Chingford, Waltham Holy Cross and Woodford Urban districts. Population, 42,000.

The Chelmsford Joint Hospital serves the Borough of Chelmsford and the Chelmsford Rural district. Population, 41,000.

The Rochford Joint Hospital serves the Rochford Rural district and Shoeburyness. Population, 22,000.

The Braintree Joint Hospital serves the Braintree Urban and Rural districts. Population, 23,500.

The Saffron Walden Joint Hospital serves the Borough of Saffron Walden and the Rural district. Population, 16,000.

The Maldon Joint Hospital serves the Borough of Maldon and the northern half of the Maldon Rural district. Population, 14,000. The Port Authority also has the use of the hospital.

The Romford Joint Hospital serves Romford Urban and Rural districts. Population, 41,000.

The Walthamstow Hospital by arrangement takes all the cases from Loughton.

In the Hospitals receiving grants there are 599 beds for a population of about 695,000.

With reference to the above Hospitals, the Medical Officer's report, based upon the results of the annual inspection, was recently submitted to the County Sanitary Committee, and the Committee allocated the Grants enumerated in the appended Table :—

“The County Sanitary Committee, after considering a report on the condition and administration of the hospitals applying for a grant, recommended the County Council that the following grants be made for the year ended March 31st, 1910.

TABLE XXVIII.

HOSPITALS.					No. of Beds.	Grant per Head.	Grant.
						£ s. d.	£ s. d.
Walthamstow	...	...	...	...	84	5 0 0	420 0 0
Ilford	...	...	...	...	56	5 0 0	280 0 0
Waltham	...	...	...	...	42	5 0 0	210 0 0
Romford	...	...	...	...	42	5 0 0	210 0 0
Chelmsford	...	...	...	...	21	5 0 0	105 0 0
Clacton	...	...	...	...	17	5 0 0	85 0 0
Dunmow	...	...	...	...	8	5 0 0	40 0 0
Braintree	...	...	...	...	8	5 0 0	40 0 0
Maldon	...	...	...	...	10	5 0 0	50 0 0
East Ham	...	...	...	...	42	5 0 0	210 0 0
Southend	...	...	...	...	21	4 15 0	99 15 0
Orsett	...	...	...	...	20	5 0 0	100 0 0
Saffron Walden	...	...	...	...	6	4 15 0	28 10 0
Rochford	...	...	...	...	12	4 10 0	54 0 0
Halstead	...	...	...	...	6	4 10 0	27 0 0

In the case of Rochford, however, the Committee recommended that the grant be withheld until the public water supply had been laid on to the hospital, as there are no special provisions in case of fire, and one ward block is of wood and iron. The present supply of water is from a shallow well on the premises, and the public mains run along the road past the hospital entrance.

Certain details relating to expenditure, etc., are given in Table XXIX.

The districts having hospitals which were not erected out of loans approved by the Local Government Board are as under :—

BARKING. The following account of the hospital, etc., is taken from the Medical Officer of Health's report ;—

“ The hospital provides accommodation for cases of scarlet fever, diphtheria, and enteric fever. It is constructed of corrugated iron, and has accommodation for 50 patients, 24 scarlet fever and 26 enteric and diphtheria. The administrative block consists of an old wooden cottage, and some of the nurses are accommodated in rooms adjoining the wards. The question has arisen as to the provision of more permanent arrangements. The Medical Officers were instructed to report on a site during the year, so that the removal of the hospital might be considered. Having regard to the unsettled condition of administration in view of the publication of the reports of the Royal Commission on the Poor Laws, and the great want of economy in managing small institutions, it seems that neither the necessities of the case nor expediency urge any immediate alteration of existing arrangements. A

portion of the grounds is fenced by ditches. The water in one of them was found to be at such a level during the year that it might constitute a source of danger to young children, and steps were taken to lower it. Fly guards were provided for some of the windows, which proved to be a great boon to the inmates.

“The staff consists of:—Matron, Staff Nurse, 3 Assistant Nurses, 2 Probationers, Temporary Assistant Nurse, Laundress, Cook, 3 Maids, and Caretaker.”

COLCHESTER. No description of this hospital is given, but in 1907 the Medical Officer of Health reported that the need of more modern and better ward accommodation was felt throughout the year, and that many of the arrangements were unsatisfactory. In the last report the Medical Officer of Health says that the building of new wards has been started and that when completed there should be ample accommodation for some time to come.

EPPING. *Vide Epping Rural.*

HARWICH. There is a small hospital in this borough, but the County has no official information concerning it.

LEYTON. There is a large hospital here, consisting of several ward blocks, of wood and iron. They are situated on a limited area of land adjoining the sewage works. Land was purchased some years ago upon which to erect a permanent hospital, but as no steps appear to have been taken to provide the hospital the County Sanitary Committee has desired the County Medical Officer to report upon the sufficiency or otherwise of the accommodation provided.

WANSTEAD. The hospital here, of wood and iron, comprises two pavilions with 20 beds. The Medical Officer of Health is perfectly satisfied with it and it meets all the present requirements of the district.

BILLERICAY (R.) There is a small permanent hospital belonging to this district within the area of the Chelmsford Rural District. It is too small. The Medical Officer of Health says: “During the year we have frequently been unable to take in cases from our own district on account of the wards being full.” Fifteen cases had to be sent to the Romford hospital. “The question of providing increased accommodation at the hospital has been considered . . . and they have decided to enlarge the existing building.” By arrangement cases from Brentwood are sent to this hospital, but during the year many cases had to remain at home or be sent to Romford. The Brentwood Medical Officer of Health thinks that if the hospital were enlarged it would suffice for both districts for a time. The enlargement of the Brentwood area and provision of a separate hospital for Brentwood would be a better solution of the difficulty.

BUMPSTEAD (R.) A small wood and iron hospital for four beds in the parish of Clare (Suffolk) is called the Clare and Bumpstead Joint Fever Hospital. It was originally erected for the isolation of cases of small-pox.

EPPING (R.) The following is the Medical Officer of Health's account of this hospital:—

TABLE XXIX.

STATISTICAL INFORMATION RELATING TO ISOLATION HOSPITALS APPLYING FOR A GRANT.

YEAR ENDING MARCH 31ST, 1910.

	Walthamstow.	East Ham.	Ilford.	Southend.	Orsett Joint Hospital.	Waltham Joint Hospital.	Chelmsford Joint Hospital.	Rochford Joint Hospital.	Clacton.	Dunmow.	Braintree Joint Hospital.	Safron Walden Joint Hospital.	Maldon Joint Hospital.	Halstead.	Romford Joint Hospital.
Total Number of Beds in Hospital ...	105	124	80	62	46	40	23	20	17	12	11	10	10	6	70†
Number for purpose of Grant ...	34	42	66	21	20	42	21	12	17	8	8	6	10	6	42
<i>Cases admitted during year:—</i>															
Scarlet Fever ...	401	343	163	116	54	63	79	83	11	13	17	6	14	3	195
Diphtheria ...	168	155	78	72	30	13	8	7	35	1	8	4	9	0	65
Typhoid Fever ...	—	1	5	3	2	2	—	9	2	—	3	—	4	—	3
Other Diseases ...	—	12	3	—	5	2	—	—	—	—	—	—	—	—	—
Total ...	669	511	249	191	92	70	87	99	48	14	28	10	27	3	254
Permanent Staff Residing in Hospital ...	35	37	19	14	11	10	9	4	4	3	3	3	7	2	23
Non-Resident Staff* ...	5	12	5	5	0	1	0	1	1	—	1	—	—	—	1
<i>Expenditure for year:—</i>															
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Structural Expenses ...	3047 2 0	1520 0 0	1884 1 0	1238 13 0	789 7 0	866 3 0	613 15 0	305 15 0	594 17 0	428 1 0	265 0 0	92 8 0	331 7 0	206 12 0	988 0 0
Establishment „ ...	4515 7 0	5019 0 0	4467 18 0	1928 19 0	1118 6 0	1272 9 0	1211 1 0	683 13 0	364 8 0	378 5 0	599 15 0	268 8 0	644 16 0	182 19 0	2153 0 0
Patients „ ...	341 15 0	466 0 0	131 18 0	129 14 0	33 8 0	48 7 0	40 10 0	114 7 5 0	10 16 0	10 12 0	28 16 0	8 17 0	15 8 0	6 16 0	264 0 0
Total ...	7905 6 0	7005 0 0	6483 17 0	3297 6 0	1932 1 0	2186 19 0	1355 7 0	1104 3 0	970 1 0	816 18 0	893 11 0	369 13 0	996 11 0	306 6 0	3405 0 0
Name of Clerk ...	C. S. Watson	C. E. Wilson	A. Partington		James Beck	T. J. Tee	Leonard Gray	F. Gregson		A. Floyd	F. J. Wiles	W. Adams	F. H. Bright	R. Morton	W. Smith
<i>Details of Establishment Expenses:—</i>															
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Food, Appliances, Heating, Lighting, and Repairs ...	2926 14 0	3200 0 0	2640 0 0	1240 1 0	514 15 0	527 8 0	545 14 0	280 0 0	197 6 0	100 9 0	252 0 0	134 7 0	267 3 0	112 0 0	1122 0 0
Rates, Rents and Taxes, Water ...	444 6 0	220 0 0	329 4 0	105 19 0	62 6 0	111 8 0	46 19 0	34 19 0	8 3 0	27 8 0	20 9 0	19 15 0	19 8 0	12 6 0	166 0 0
Office and Other Expenses ...	121 7 0	34 0 0	23 13 0	39 14 0	98 11 0	117 12 0	145 11 0	15 10 0	1 10 0	11 0 0	14 4 0	—	30 19 0	—	78 0 0
Salaries ...	1023 0 0	1565 0 0	1475 1 0	543 5 0	442 14 0	519 1 0	472 17 0	353 3 0	157 9 0	239 8 0	313 3 0	114 6 0	327 6 0	58 13 0	787 0 0
Total ...	4515 7 0	5019 0	4467 18 0	1928 19 0	1118 6 0	1272 9 0	1211 1 0	683 12 0	364 8 0	378 5 0	599 16 0	268 8 0	649 16 0	182 19 0	2153 0 0

*Excluding Medical Officer and Clerk.

†There are no temporary buildings. In each ward there is a number of cots counted as beds.

"The hospital provided for the district is situated $1\frac{1}{2}$ miles from the town of Epping. It consists of two pavilions, to one of which an observation ward has been added during the year. One pavilion has 12 beds for scarlet fever patients, and the other 4 beds for diphtheria or typhoid fever. The accommodation is sufficient to meet the requirements of the district, and infectious cases from Loughton and Epping Urban Districts have hitherto been received by contract. The contract with the Loughton Council is, however, shortly to terminate, as it has been found the accommodation for so large an area is inadequate. In addition to the wards there are a caretakers's cottage, a laundry, the usual out-offices, and a disinfecting shed, fitted with a 'Thresh' steam disinfecter. Clothing and bedding, both from the hospital and from infected houses, are regularly brought to the shed and disinfected. The arrangement has been in use for several years and has proved most satisfactory."

HALSTEAD (R.) A good sized isolated cottage at Heddingham is used as an isolation hospital.

STANSTED (R.) Cases are sent to the Bishop Stortford hospital which serves four other districts (all four in Herts).

The remaining districts have no isolation hospitals, though some possess tents which can be used in emergencies. With reference to the limited utility of such tents the experience of Dr. Cook, Medical Officer of Health for Clacton (U.), Tendring (R.), and Lexden and Winstree (R.) may be quoted. He is referring to the tent hospital provided in the Tendring district:—

"The isolation hospital consists of two tents, containing four beds each, for patients, and a bell tent for two nurses, with a large van fitted up as, and used as a kitchen when the hospital is at work, and at other times it contains all the appurtenances of the hospital, so that it can be moved about from place to place as may be required; but there is, and must be, considerable loss of time in getting it erected and put to work. Land has to be procured, and nurses obtained, besides the erection of the tents, and then only one disease can be treated at a time. I have often regretted that we have no proper permanent hospital, but never more so than during the scarlet fever epidemic of last year, for, had there been a hospital ready so that the first cases could have been moved and placed under proper isolation, I feel sure the outbreak would have been stopped in a very short time, and that the cases would have been few. A very useful combination of districts might be created for a large central hospital. I know the cost is dreaded, but it seems to me that such an institution would be real economy."

The districts without any hospital are:—Brightlingsea, Burnham (has an isolation cottage?), Frinton, Leigh-on-Sea, Walton-on-Naze, Witham, Wivenhoe, Belchamp (R.), Ongar (R.), Lexden and Winstree (R.) and Tendring (R.)

A glance at a map of Essex will shew that some more or less satisfactory accommodation is provided for nearly all parts of the County, save the Tendring and Lexden and Winstree areas. Parkeston, with its docks and a large population dependent upon the continental traffic, is in the Tendring district.

THE HOSPITAL ACCOMMODATION FOR THE PORTS. The Maldon Port Authority would use the Maldon Joint Hospital, which is near. Colchester Port Authority a small floating hospital. Harwich, however, is the only port through which disease is likely to be introduced, and in 1907 the Local Government Board directed attention to the inadequacy of the floating hospital. A second vessel has since been purchased with the intention of converting it into an auxiliary hospital.

Recent enquiry has been made throughout the County with reference to the provision made for dealing with cases of small-pox should this disease be introduced ; the following report was made recently to the County Sanitary Committee :—

Barking, East Ham, Ilford, Romford U. and R., Walthamstow, Wanstead, Woodford and Ongar Rural have a binding arrangement with West Ham Corporation to take all their cases into the Hospital at Dagenham. This is a properly equipped modern hospital for 80 beds, but there are corrugated iron hospitals also in the grounds, bringing up the accommodation to 350 beds, and if necessary tents could be erected also. By the agreement each district pays an annual retaining fee £1 10s. per 1,000 population, and would pay £3 3s. 0d. per week for each case admitted. There is no limit to the number of cases to be received. The agreement is until September, 1914, and is, I understand, renewable.

Leyton has not entered into this combination, and is depending upon its cases being received into the M.A.B. hospitals.

The following districts have Hospitals which are immediately available :—

BRAINTREE U. and R. C. Iron. 18 beds in 4 wards. At Black Notley.

CHELMSFORD U. and R. C. Iron. 8 beds in 2 wards. At Galleywood.

COLCHESTER. Hospital and cottage at Mayland. 16 beds.

GRAYS AND ORSETT. C. Iron Hospital at Grays. Could take 60 cases (with tents).

SAFFRON WALDEN U. and R. A Hospital for 5 or 6 beds, adjoining existing Isolation Hospital.

SOUTHEND. C. Iron Hospital at boundary of Borough ; with 12 or more beds.

STANSTED. Belongs to a combination of 4 districts. C. Iron Hospital. 6-8 beds.

BUMPSTEAD. In a combination. Has use of Hospital with 4 beds.

SHOEBURYNESS AND ROCHFORD. At Noble's Green. A house and large tent.

The following have tents or sheds or buildings which could be quickly utilized, but are not immediately available :—

BRIGHTLINGSEA. Two tents for 6 beds each, and can have land at a moment's notice.

CLACTON. Tents, and can have land at a moment's notice.

CHINGFORD. A house at Sewage Farm, also a tent.

EPPING U. A wooden shed for 4 beds. Not equipped.

„ R. Tents which they would erect on Mr. C. Marsh's ground.

HALSTEAD U. and R. Would hope to use a Cottage Hospital at Castle Hedingham which belongs to Rural District Council. No definite arrangement has been made between the Councils, and the house might be occupied by patients suffering from some other disease.

WALTON-ON-NAZE. Has a tent, but would have to find land.

WYVENHOE. Say they would send cases to Colchester. No agreement.

BILLERICAY. Has tents and land.

LEXDEN AND WINSTREE AND TENDRING R. Both have tents and would hope to get land near where cases occurred.

The following have no arrangements of any kind:—

HARWICH (would turn patients out of Isolation Hospital and put in smallpox cases), Brentwood, Buekhurst Hill, Burnham, Frinton, Leigh-on-Sea (has land for tent), Loughton, Waltham Cross, Witham (has land), Dunmow.

Since this report was printed some of the Sanitary Authorities are endeavouring to make definite arrangements with other authorities. The smaller districts, however, are depending upon being able to obtain a cottage or hire tents when the occasion requires.

On the whole the arrangements were so satisfactory that the Sanitary Committee did not think any further action on their part was necessary, beyond suggesting to certain districts the desirability of being prepared for any emergency.

SECTION III.

SANITARY ADMINISTRATION.

Reference to the epitomised reports of the Medical Officers of Health will enable an opinion to be formed, in most cases, of the sanitary circumstances and administration of the districts reported upon. Too often, however, this opinion will have to be based upon information not given, rather than on that which is recorded, hence the possibility of error, as the Medical Officer of Health may have done his district some injustice in presenting an incomplete report.

In the following sub-sections the information will refer to the County generally and be based not only upon the local reports but also upon my own observations and upon reports made by me to the County Sanitary Committee.

The subjects selected to be dealt with are as follows :—

1. The administration of the "Housing of the Working Classes Acts" 1890 and 1909.
2. The water supply of the County.
3. The pollution of rivers and steps taken to prevent such pollution.
4. Administration of the "Midwives Act."
5. Administration of the "Sale of Foods and Drugs Acts."

1. ADMINISTRATION OF THE "HOUSING OF THE WORKING CLASSES ACTS."

"The Housing, Town Planning, etc., Act," 1909, is divided into three parts. The first part deals with "The Housing of the Working Classes," the second with "Town Planning," and the third with "County Medical Officers, Public Health and Housing Committees, etc.," and the last section of the Act says that Part I. should be construed as one with the Housing of the Working Classes Acts, 1890 to 1903, and that these together may be cited as the Housing of the Working Classes Acts, 1890 to 1909. As the new Act is dated December 3rd, 1909, it is obvious that there can be nothing to report under it, but attention may be directed to its chief provisions. Medical Officers of Health should possess copies of the two memoranda issued by the Local Government Board bearing upon the new Act and dated December 31st, 1909. In the smaller of these Memoranda there is such an excellent summary of Part I. that I have no hesitation in including it. The Memorandum was issued to Town Councils and Urban and Rural District Councils :—

"HOUSING OF THE WORKING CLASSES.

"The principal provisions in regard to this subject are contained in Part I. and the First Schedule to the Act. They may be summarised as follows :—

“(1) Part III. of the Housing of the Working Classes Act, 1890, which enables Local Authorities to provide houses for the working classes is put in force throughout the whole country.

“This part of the Act of 1890 has in the past been adoptive only, and in rural districts could not be adopted without the consent of the County Council. There are many urban districts in which that Part has not been adopted, and the rural districts in which it has been adopted do not number a score. Yet a large volume of evidence was given before the Select Committee on the Housing of the Working Classes Acts Amendment Bill, 1906, to the effect that there was urgent need for action under Part III. of the Act of 1890 in many rural districts, and the Select Committee endorsed this view.

“(2) The new Act greatly increases the facilities for the acquisition of land for the purposes of the Housing Acts. The difficulty of acquiring land for these purposes is one upon which the Select Committee of 1906 laid particular stress. The effect of Section 2 of Schedule I. is to make the powers granted to the councils of counties and county boroughs by the Small Holdings and Allotments Act, 1908, for the compulsory purchase of land for small holdings available to local authorities acting under Part III of the Housing of the Working Classes Act, 1890, for the compulsory purchase of land for the purposes of that Part, subject to some modifications as regards land in urban areas. The extent of the simplification of procedure involved will be recognised when it is remembered that hitherto a Provisional Order confirmed by Parliament has been necessary in every case before authority for the compulsory purchase of land for this object could be obtained.

“(3) Loans can in future be made by the Public Works Loan Commissioners for periods up to 80 years at the minimum rate of interest allowed for the time being for loans out of the Local Loans Fund, and the rate of interest will not vary with the term allowed for repayment.

“The Committee of 1906 laid great stress on the financial aspects of the housing question, and the Board have themselves had many representations from local authorities to the effect that such an enactment as that in Section 3 would greatly facilitate their efforts in dealing with the question.

“(4) Powers are given for the enforcement of the execution of the Housing Act. The Board trust that it may not often be necessary to resort to these powers, but they must point out that they are very complete as regards all matters concerning the housing of the working classes, and in particular extend to enable the Board to enforce the inspection required by Section 17 of the new Act, a matter in which certain local authorities have in the past been very lax.

“(5) The law as regards the closing and demolition of dwellings unfit for human habitation is simplified and strengthened.

“ Local Authorities will, under the new Act, themselves make closing orders, and the powers of a Court of Summary Jurisdiction in this respect will cease.

“(6) The new Act extends to houses of much higher rental than those fixed by Section 75 of the Act of 1890 the condition implied in the contract for letting, that the house is fit for habitation, and includes in the implication a condition that the landlord shall keep the house in a state reasonably fit for habitation during the holding.

“ The need for raising the limit of rentals will be recognised when it is borne in mind that the original limit was fixed in 1885, since which time there has been a considerable rise in the rents of working-class houses.

“ Section 15, which requires landlords to keep houses within the rental limits above referred to in all respects reasonably fit for human habitation, gives powers to the local authority in regard to landlords who make default in this respect, which, in the opinion of the Board, should prove of great value. The powers vested in local authorities of dealing with houses such as those in question have not in the past been very complete; for it was necessary either to prove the existence of a statutory nuisance, or to show to the satisfaction of a Court of Summary Jurisdiction that the house was in a state so dangerous or injurious to health as to be unfit for human habitation.

“ The Board trust that the Council will not hesitate to use their powers under the new Section.

“(7) Other important provisions to which attention should be drawn are those contained in Section 17 (7), with regard to underground rooms habitually used as sleeping places, in Section 43, which prohibits the erection of back-to-back houses, and in Section 24, the effect of which is that schemes under Part I. or Part II. of the Act of 1890 will take effect on the issue of the Board's Order confirming them. No such Order will need confirmation by Parliament.

“ Reference may also be made to Section 36, which considerably enlarges the power of entry on premises for the purposes of the Housing Acts, and to Section 44, which enables the Board to deal with byelaws with respect to new streets or buildings if the erection of dwellings for the working classes is unreasonably impeded in consequence of them.”

The second memorandum which is addressed to Rural District Councils is much more lengthy and directs attention to many matters not dealt with in the shorter circular. Two or three points, however, alone require reference here.

Under Section 12 of the new Act, the County Council can act upon complaint made to them by the Parish Council or Parish Meeting of any parish or by four inhabitant householders of that district. The County Council may then hold a public enquiry and may resolve that the powers of the District Council be transferred to the County Council. In such a case doubtless the County Council would proceed to obtain the necessary powers from the Local Government Board to provide such additional cottage accommodation as may appear to them to be required.

Under Section 17, sub-section 1, imposing the duty of systematic inspection, every officer must comply with such regulations and keep such records as the Local Government Board may prescribe. The Board will attach much importance to this and the Regulations, etc., may be issued almost immediately as they have been under consideration for some time.

Under Section 69 the Clerk of a Rural District Council must forward to the Medical Officer of Health of the County a copy of any representation, etc., under Section 45 of the Housing of the Working Classes Act, 1890, and the Medical Officer of Health of a district shall give to the County Medical Officer any information which it is in his power to give, and which the County Medical Officer of Health may reasonably require from him for the purpose of his duties prescribed by the Local Government Board.

Under Section 71 every County Council must establish a Public Health and Housing Committee, and upon this committee certain duties are imposed and certain powers conferred.

Prior to the passing of this Act the County Council has had little knowledge of what was being done in the County under the Housing of the Working Classes Acts, and I do not remember a single complaint being made to the Council under the Acts.

Under Part I. of the 1890 Act dealing with "Unhealthy Areas" I believe action was taken in one small Urban district some years ago, but no action under this part is recorded during the past year. In some of the older towns there are small areas covered with slum property but apparently the defects are regarded as being effectually remedied otherwise than by an improvement scheme. As I have had opportunities at various times of examining in some detail unhealthy areas in English, Scotch and Irish towns, I can affirm that there are few, if any, such areas in Essex. Compared with what I have seen in such towns as Manchester, Belfast, Grimsby, the Pottery Towns, etc., we have no slums, and if due care is taken in the rapidly growing towns in the county no such slums will ever be allowed to exist. Practically all our large towns are modern and almost from the first exhibition of a tendency to increase building operations these have been supervised and bye-laws made and enforced. Doubtless to this fact the low death-rate in the county is chiefly attributable.

Part II. of the principal Act, relating to "Unhealthy dwelling-houses," has undoubtedly been of great value, and in many districts the Medical Officers of Health have given great attention to unhealthy dwellings. Doubtless in certain districts there are more old and defective cottages than in others, but in all the Rural districts a certain number of such cottages exist and great difficulty is experienced in dealing with them on account of the inadequacy of the cottage accommodation, and sometimes the poverty of the owners renders it impossible for them to find the money necessary to put the property in really good habitable repair. Moreover the magistrates have frequently held very different opinions to those of the Sanitary Authorities as to what constituted "good habitable repair." This difficulty is believed to be surmounted by the Housing and Town Planning Acts, which makes the Sanitary Authorities the judges. Recently when examining some cottages with members of such an authority some regarded the cottages as being fairly habitable or capable of easily being made so, whilst others regarded them as utterly unfit for human

habitation and incapable of being made fit save by entire reconstruction. Old houses such as those to which I am referring are let at very low rentals, and the people living in them are often perfectly content, and assert that they enjoy good health, and often they are so poor that they could not afford to pay the rent of a better cottage. They strongly resent any action on the part of the Sanitary Authority or their officials which might result in their having to go into the workhouse. Some of these places when occupied by tenants who possess cleanly instincts, and who are anxious to make the best of their dwellings, look quite cheerful and comfortable inside, whereas similar houses occupied by dirty people, who take no pride whatever in their homes, look so comfortless that they might even be regarded as unfit for stabling a horse. How all these difficulties will ultimately be surmounted it is impossible to say. I am of opinion that "education" will be more serviceable than Acts of Parliament, and for the present we must do the best we can with existing powers and at the same time help to educate the rising generation so that they may know how they ought to live.

The summary of the reports of the Sanitary Inspectors is unfortunately incomplete, some reports being missing and others not giving information in the desired form. This Table will probably require alteration this year so that records may be obtained of the number of houses inspected under the Housing of the Working Classes Acts, the number found in uninhabitable repair, the number closed, etc. Possibly, however, the Local Government Board will require this information to be given by the Medical Officer of Health.

In the Inspectors' Table the majority give no indication of the number of houses placed in habitable repair, whilst in one (Leyton) every house which has had defects remedied is included. Possibly the number of houses closed during the year may afford more reliable information. In the Urban districts 26 houses appear to have been closed, and in the Rural districts 18, or 44 in the whole of that portion of the county included in the Inspectors' reports.

Under Part III. of the Housing of the Working Classes Act, 1890, Sanitary Authorities may provide cottages, and in many districts houses have been provided. The only Rural District Council which has erected cottages under this part of the Act is Maldon and an account of their experiment was given in the annual report for that district in 1908. Six cottages were erected at Bradwell-on-Sea at a cost of £1,450. They let at £9 2s. 0d. per annum—(3s. 6d. per week)—and the repayment rates, repairs, &c., average £14 13s. 0d. per annum. The nett yield on the capital expended is $2\frac{7}{10}$ per cent. The annual repayment of loan and interest, the rates and other expenses, amount to £96 15s. 9d. per annum. The rent received is £54 12s. 0d. and the balance £42 3s. 9d. is raised in the parish by a rate of $2\frac{3}{4}$ d. in the £. The experiment has not been the success anticipated and has not encouraged either the Maldon or any other rural authority to build. Messrs. Wilkin, of Tiptree, have erected similar cottages with three bedrooms at a much smaller cost, and I cannot understand why sanitary authorities cannot provide cottages at as cheap a rate as private individuals. Whilst the Bradwell cottages shew a return of $2\frac{7}{10}$ per cent. on cost, the Tiptree cottages yield $3\frac{7}{10}$. With the latter yield a scheme becomes feasible, but with the former it lays too heavy a burden upon the rates.

The following are some of the more important references in the annual reports to the subject of the Housing of the Working Classes:—

BARKING. The Council owns 72 cottages let at 5s. 6d. per week and 85 let at 6s. 6d. a week. There is no shortage of houses for those who can afford to pay from 5s. 6d. a week rent.

BRENTWOOD. The Council erected 29 cottages in 1903 at a cost of £6,000. They are let at 5s. 6d. to 6s. 6d. per week.

EAST HAM. The housing is, on the whole, satisfactory. The Council own 220 double tenements. Each contains 2 bedrooms, sitting room, scullery with bath, etc. and let at 7s. per week upstairs and 6s. 6d. on the ground floor.

EPPING. There are many dilapidated and unhealthy cottages in this old town, "and amongst the occupants are to be found many examples of all the well-known ill effects of bad housing." On account of the difficulty in finding decent houses very little has been done by the authority.

LEIGH-ON-SEA. In the old town there are many wooden houses of a not very satisfactory character. Some of these have been demolished during the year and have been replaced by brick-built cottages or by business premises.

MALDON. Some of the old houses have insufficient air space around them. The Medical Officer of Health hopes the Sanitary Authority will not continue to permit wooden sheds to be erected within the area of the open space prescribed by the byelaw. A threat of action under Part II. of the Housing of the Working Classes Act included a landlord to make some needed improvements to his property.

SOUTHEND. The Corporation erected 40 houses under Part III. of the Housing of the Working Classes Act in 1902, but there is no great demand for them when they become vacant. They are of two types; those of Class A contain an entrance porch, a parlour, kitchen, scullery, three bedrooms, and a bathroom, and are let at 8s. 6d. per week; those of Class B contain a small entrance porch, a living room, a scullery, and two bedrooms, and are let at 7s. 5d. per week. The rents are inclusive of rates. There is no deficiency at present of workmen's dwellings. There are no slums or back-to-back houses in the borough. The visits to houses, following the routine of school inspection, have shewn that many of these, as in other towns, are in a most deplorable condition as regards cleanliness. Some of the newest houses are in the dirtiest condition. The Medical Officer of Health hopes that the attention paid to children by the School Authority and its officers may not be without effect upon lazy, neglectful mothers.

WALTHAMSTOW. There is ample housing accommodation at rentals varying from 5s. 9d. to 9s. per week, rates included.

WANSTEAD. Several building estates have been recently laid out, roads have been made, many houses built, and plans passed for 178 which will be erected in a few months. This development "will make radical alterations in the appearance of the geographical area."

WOODFORD. Some of the oldest houses are not entirely satisfactory. The large houses with more or less extensive grounds, of which there were many, are gradually disappearing, the ground being sold for building.

BILLERICAY R. "There is hardly a parish in the district where additional cottages are not wanted." Overcrowding nuisances cannot be abated. The present conditions tend "not only towards overcrowding, but also towards immoral living."

CHELMSFORD R. 378 houses have been erected since the last census, but there is still a demand for more cottages in several parishes. The Little Waltham Parish Council requested the Rural District Council to exercise their powers under the Housing of the Working Classes Act and provide a number of cottages. The Medical Officer of Health's report did not support the allegations which were made and the Parish Council let the matter drop. The following abstracts from the annual report bear on the housing question:—

“The village (Little Waltham) is entirely dependent upon agriculture and there are no manufactories of any kind near it. If there were more employment there would probably be no difficulty in providing cottages, and until such employment is found very little improvement is likely to be effected.”

In another parish reported upon it is said:—

“Ten farms belonging to one owner have a total area of 950 acres, and there is not a single cottage provided for the labourers. Two other farms of 343 acres have no cottage, whilst 22 cottages are provided for six farms of 1,100 acres. So long as no legal power exists to compel landowners to provide their quota of cottages, so long will Housing Acts prove ineffective. Naturally, parishes object to being rated to provide cottages for the benefit of landlords. I cannot help thinking that this is mistaken policy on the part of landowners, and that it is as much against their own interests as it is against that of the community. The lack of decent cottages drives all the best blood out of the villages, and leads to farmers preferring to employ unmarried men or men with small families. The folly of this action must be evident to anyone who has studied the subject, and to those who have not I commend the following passage from Whelham on ‘The Family and the Nation,’ as good horsemen and agricultural labourers deserve more consideration than grooms and gardeners:—

“The present habit of advertising for coachmen, gardeners and game-keepers ‘without encumbrance’ should meet with the universal reprobation it deserves. Such announcements ought not to be allowed to disfigure the columns of otherwise respectable newspapers. These men, usually of good stock, with regular, well paid work, should be a steady source of valuable addition to the population, and pride should be taken in providing for their occupation cottages with accommodation suitable for a large family. In fact, those responsible for the management of estates might make sure, as a general policy, that the limited number and inadequate size of cottages cannot be made the excuse by satisfactory parents for the limited production of children. Country landowners have many and great responsibilities, which for the most part they have met well. When they come to realise the importance to the nation at large, and even to their own neighbourhood, of a constant supply of healthy children of good stock, they will find there are many ways besides example in which they can exert an influence for good.”

EPPING R. In the report for 1908 the Medical Officer of Health dwelt especially upon the want of good cottages. The present accommodation for labourers is poor and inadequate. Not much improvement has been effected. A few have been closed or placed in habitable repair, but the re-placing of the old, dilapidated wooden structures by modern brick cottages has made but little progress, with the result that overcrowding, with its associated evils, remains much as heretofore.

MALDON R. This District Council owns six cottages at Bradwell. Although over 400 houses have been erected since the last census, certain parishes remain short of cottages, the very old ones gradually becoming untenable and new ones not being provided.

ONGAR R. In the northern part of the district there seems to be a real demand for cottages of a better class, and with three bedrooms.

TENDRING R. Houses are far from abundant. "Rottenness abounds." The Medical Officer of Health also says, "I believe building schemes will have to be undertaken in many parishes, but now that, under the new Act, this can be more easily accomplished I shall not hesitate to bring such before your Council."

2. THE WATER SUPPLY TO THE COUNTY.

Some years ago a report was published dealing with all the sources of supply and giving an account of all existing water works, and the water supply to every town and parish. At a later date the portion relating to rural Essex was brought up-to-date and reprinted. The larger volume has long been out of print, but copies of the smaller one are still on hand and can be supplied to anyone interested in the subject.

The sources of supply are (1) The Rivers, (2) Deep wells in the chalk and Thanet sands, (3) Springs arising at the edge of patches of gravel, sand, etc., and (4) Shallow wells in chalk, gravel, sands and boulder clay.

The only river from which any large amount of water is abstracted is the Lec and this is taken by the Metropolitan Water Board, which supplies the most populous portion of the County. The whole of the water supplied by the Board in Essex is not derived from the river but in part from a series of deep wells sunk in the chalk in the Lee valley (Essex side).

In certain parishes there are houses which find the local streams the nearest source of supply but these are very few. During recent years there has only been one outbreak of typhoid fever due to the use of such water, but another might occur at any time in those localities where the inhabitants will persist in using river water rather than go a little further distance for a safer supply.

Several enquiries have recently been made about the possibility of impounding water from certain rivers, but all the streams, save where they are tidal, are so small and sluggish, and are so liable to pollution from manured land, that their use could only be sanctioned when no other source is available and then only after storage and filtration or practical sterilization. The amount which could be obtained would be comparatively small.

The Metropolitan Water Board supplies a total population of over 525,000, in Leyton, Walthamstow, Woodford, Wanstead, Buckhurst Hill, Chingford, Loughton, Waltham Abbey, Barking, East Ham, about half Ilford, and a few rural parishes. The Medical Officers, without exception, report that the supply has been abundant and of excellent quality. The County therefore is fortunate in having fully half of its population supplied with water by the Metropolitan Water Board.

The only abundant source of water from the chalk is in the neighbourhood of Grays and Purfleet where the chalk outcrops. It is continuous under the Thames with the Kent chalk, and the water from Grays is identical with that obtained in Kent. There is no doubt that the water passes northwards under the river, and that the river is its natural outlet. This is proved by the fact that depressions of the water level at Grays results in the insuction of tidal water, the presence of which is immediately shewn by the increase of sodium and magnesium salts. I have examined large numbers (many hundreds) of waters from different wells in and near Grays and from Greenhithe, Northfleet, and Gravesend. I am very anxious to ascertain whether there is any connection between the chalk which outcrops at Grays and the deep chalk surrounding it, but all the evidence which I can obtain is against this theory.

It has been asserted that because the chalk is exposed under the Thames that polluted tidal water can enter the deep chalk which lies under the Rochford district but no tittle of proof has ever been adduced to support the theory, save that certain bacteria are often found in the waters from these deep wells, which are usually only found in contaminated waters, and as these bacteria cannot possibly be due to local contamination, for such is impossible, the Thames as their possible origin has been suggested. The difference in the character of the waters from the superficial chalk at Grays and the deep chalk in the surrounding area is shewn in the following Table:—

TABLE XXX.

RESULTS OF ANALYSES EXPRESSED IN GRAINS PER GALLON.

	Chalk outcrop.				Deep chalk near.			
	1.	...	2.	...	3.	...	4.	...
Calcium carbonate	12·0	...	17·5	...	1·5	...	3·5	...
Calcium sulphate	3·7	...	19·8	...	—	...	—	...
Calcium chloride	—	...	6·1	...	—	...	—	...
Magnesium carbonate	—	...	—	...	0·8	...	2·3	...
Magnesium sulphate	1·0	...	—	...	—	...	—	...
Magnesium chloride	1·2	...	17·2	...	—	...	—	...
Sodium carbonate	—	...	—	...	20·8	...	12·3	...
Sodium sulphate	—	...	—	...	10·5	...	17·1	...
Sodium chloride	1·7	...	98·0	...	25·1	...	18·4	...
Sodium nitrate	1·8	...	5·0	...	0·0	...	0·0	...
Silica, etc.	1·2	...	5·9	...	0·4	...	0·2	...
Total	22·6	...	169·5	...	59·1	...	53·8	...

Depth of Well	...	Ingatestone Well.	...	Writtle Well.
		Water from Chalk. 801 feet.		Water from Thanet Sands 440 feet.
Calcium carbonate	...	1.0	...	3.1
Magnesium carbonate	...	0.9	...	1.5
Sodium carbonate...	...	20.3	...	19.5
Sodium sulphate ...	...	6.7	...	13.0
Sodium chloride ...	...	26.7	...	30.4
Silica, etc.	...	0.3	...	0.6
		55.9	...	68.1

No. 1. From Grays chalk when water level is high.

No. 2. " " " is much depressed by pumping.
 Shews influx of tidal water from Thames.

No. 3 and 4. Wells several hundred feet deep at Bowers Gifford and Fobbing.

The Ingatestone and Writtle wells in central Essex contain the same constituents as the Fobbing and Bowers wells.

The water from the Thanet sands and deep chalk is identical in character throughout the whole of the county where the chalk is covered with London Clay. Any number of proofs could be adduced, but the following must suffice. At Ingatestone no water whatever was met with until the chalk had been pierced to some depth, therefore the water from this well comes entirely from the chalk. At Writtle, some five miles away, water was met with in the Thanet sand and when the chalk was pierced the supply decreased. The bore-hole in the chalk had therefore to be thoroughly sealed to recover the water. From this well, therefore, the water is derived entirely from the Thanet sands, yet, as the above analyses shew, the waters are similar.

Several water authorities derive their supplies from the chalk, and where this water is very hard, as at Grays and Saffron Walden, the water is softened before being supplied to the consumers.

The following section occurs in the South Essex Waterworks Act :—

“ 21. From and after the 31st day of August, 1908, all water delivered by the Company from the Grays works to their consumers within the limits of supply as existing at the date of the passing of this Act shall be softened according to the process known as Clark's process or such other process as shall be at least as applicable and efficacious and the Company may for such purpose enter into such arrangements and generally do all such things as may be expedient.”

Since the softening installation has been at work the water supplied, so far as my observations extend, has not exceeded $12\frac{1}{2}$ degrees. Previous to softening it had on occasions exceeded 35 degrees.

The South Essex Water Company derives water not only from the chalk at Grays and at Lindford but also from deep wells at Romford, Chadwell and Ilford and another well has been sunk in the Rom Valley at Dagenham.

The districts supplied are Grays, Barking, parts of Orsett Rural district, Romford Urban and Rural districts, Brentwood, and part of the Billericay Rural district near Brentwood, and part of Ilford, the total population in the area supplied being about 150,000.

The report for the Grays district says "The Company has laid down plant for softening the water. The work was completed last year and the hardness has now been reduced by one-half. Samples of water taken in August and December gave the following results in degrees of hardness or grains per gallon :—

August	...	Permanent hardness, 4 ; temporary, 6 ; total, 10.
December	...	" " 5 ; " 4 ; " 9.

"Examination during the previous eight years gave an average of total hardness slightly exceeding 20 degrees.

"Chloride or the equivalent of saline matter, shews a still further diminution as compared with recent years, the amount varying from 3 to 7 parts per 100,000, removing any suspicion of the influx of tidal water to the wells."

ILFORD. The Medical Officer of Health reports the extension of the Company's mains to Padnall Corner and Aldborough Hatch, and says the quality and quantity of the water supplied has been good.

ROMFORD. The Company's mains have been extended in the following roads, viz., Brooklands, Medora, Heath Park, Essex, Mawneys and Oak Street.

ORSETT R. Mains supply Tilbury Docks, Little and West Thurrock, Stifford, Aveley, North and South Ockendon, Stanford-le-Hope, Horndon-on-the-Hill, Corringham, Orsett and Orsett Heath. Negotiations have been completed for a supply to Laindon Hills.

In the Romford Rural district the mains have been extended along Bird Lane, Upminster Common, and all the cottages there are now supplied.

THE SOUTHEND WATER COMPANY.

This Company was originally formed to supply Southend with water, but as it has had to go further and further afield to obtain water its area of supply has also been extended. All the water is derived from deep wells and no less than 20 are now in use. They extend from Great Wakering on the east to Billericay on the west, and two of the wells, Billericay and Leigh, have been taken over from the respective District Councils, who found the difficulty of supplying water almost beyond their powers to surmount.

The area now supplied includes Southend, Leigh and parts of Orsett and Billericay Rural districts, with a population of about 80,000. In summer, when Leigh and Southend are full of visitors, a much larger population must be supplied.

LEIGH. The supply has been abundant and constant.

SOUTHEND. The report says, "The supply throughout the year has been constant and, beyond those temporary and localised interruptions necessitated from time to time by the exigencies of working, there has been no intermission of service." One complaint only was received and the cause was remedied by flushing. The water is

said to be "of a high degree of purity judged both by chemical and bacteriological standards ; samples are examined at regular intervals at the Borough Laboratory."

BILLERICAY R. The mains have been extended to supply Billericay and Wickford and already a large number of houses are connected.

ORSETT R. Fobbing is now supplied by the Company.

The Company is applying for powers to further extend its area both for purposes of supply and for sinking more wells. There is probably no district in England in which the question of water supply presents greater difficulties than in that entrusted to this Company, and it is marvellous how these difficulties are being and have been surmounted, and a dividend paid to the shareholders. From time to time I examine all the wells and pumping stations, the reservoirs, etc., and submit samples of water to chemical and bacteriological analysis.

The three Water Authorities above referred to supply the whole of South Essex, which comprises about one-third the area of the County and three-fourths of the entire population. The less densely populated portions of the County are supplied by numerous waterworks, only four of which are under the control of private companies. These are the Herts and Essex Water Co., the Stansted Water Co., the Tendring Hundred Water Co, and the Mid Essex and District Water Co.

THE HERTS AND ESSEX WATERWORKS.

This Company derives its supply of water from chalk wells in Hertfordshire, and the original limit of supply was limited to a portion of the Epping Union. The Secretary, Mr. Wm. Jones, of Harlow, has kindly furnished me with the following information : "A provisional Order was obtained in 1907 empowering us to supply the parishes of Roydon, Great Parndon, Little Parndon and Nazeing. We have extended our mains during the last two years to Sheering, Netteswell to Roydon and Nazeing, to Greensted, Toothill and Ongar, about 25 miles of mains having been laid. A reservoir has been erected at Ryehill to contain 140,000 gallons. The wells (in Herts) have been deepened and now yield approximately 5 million gallons per week. The Hatfield Broad Oak Water Co. is supplied by this Company with water. Other main extensions are probable to Lambourne, etc."

EPHING. The whole of the Epping Urban district is supplied by this Company. The supply has been well maintained, and, although the hardness is commented upon, the water is pure and wholesome. In the Rural district the Medical Officer of Health says there has been considerable activity displayed during the year in improving the water supplies and he mentions the extensions referred to by the Secretary above.

DUNMOW R. A small Company has been formed to take water from the Herts and Essex Co. and supply Hatfield Town and Hatfield Heath. The mains have been laid and already 144 houses are being supplied. A portion of this district is also supplied by another recently formed Company.

STANSTED WATER CO.

This Company derives water from a well in the chalk, and supplies the small town of Stansted. The supply both as regards quality and quantity is apparently

satisfactory, as the Medical Officer of Health for the Stansted Rural district makes no comment upon it. The chalk here is not covered by any thickness of London Clay, and the water it yields is what is usually spoken of as "typical" chalk water.

THE MID-ESSEX AND DISTRICT WATER CO., LTD.

This Company supplies Dunmow from a deep well and Felstead from a spring. The following details have kindly been furnished me by Mr. Floyd, Clerk to the Dunmow Rural District Council :—

"A bore-hole, 300 ft. deep, has been sunk at the Pumping Station in Mill Lane, the lower 117 ft. of which is in chalk. This bore-hole has been lined with steel tubes 10 in. in diameter for 110 ft. and 6 in. diameter for the next 96 ft., the remaining depth being unlined. The water comes from the chalk and stands in the bore-hole at 32 ft. from the surface. The water did not rise in the bore-hole until the chalk was reached. It has been analysed both chemically and bacteriologically by Dr. Thresh, who reports that 'it is of the greatest organic purity, and is a typical chalk water of moderate hardness.' He further reports that 'it will be an excellent water for a public supply.' The yield of water from this bore-hole was subjected to a five days' continuous pumping test, and was found to be not less than 5,000 gallons an hour, but as much as 7,000 gallons an hour was obtained from it with only a few feet lowering of the water level during pumping. The rate of yield being so satisfactory, and beyond the requirements of the town, it was not considered necessary by the Engineer to prolong the test. In the bore-hole an Ashley's patent bore-hole pump, supplied by Messrs. Glenfield and Kennedy, of Kilmarnock, has been fixed, and is capable of pumping 5,000 gallons per hour."

The length of mains laid is about $3\frac{1}{2}$ miles. As yet only 100 houses have been connected. At Felstead the spring water is raised to a tank, from which the village is supplied. The mains are $1\frac{1}{8}$ ths miles in length. Only 30 houses have taken the supply. Leave has been granted the Company to supply Thaxted, but no work has as yet been undertaken, as it seems difficult to convince the inhabitants that the present supply, from shallow wells, is not satisfactory.

THE TENDRING HUNDRED WATER CO.

This Company's area of supply includes 18 parishes in the extreme north-east corner of the County. Water has to be obtained from deep wells in the chalk on the western boundary of this area. The sands and deep chalk over most of the Tendring area yield water which is brackish, containing considerable quantities of common salt and salts of magnesia. It is, therefore, quite unsuitable for domestic purposes. Towards Brightlingsea a better water is obtainable, but across the Colne on Mersea Island the water is again more saline. To the north-west, where the chalk comes nearer the surface, a typical chalk water is obtained of moderate hardness, and it is water of this character which the Company supplies to its customers. Within the area of the Tendring Union the chalk yields four different types of water—

1. An alkaline water resembling that from the deep chalk in Central and South-East Essex ;
2. The typical chalk water of other counties ;
3. An excessively hard water containing not only chalk but sulphate of calcium and magnesium ;
4. A brackish water, probably a mixture of No. 2 with tidal water.

From their well at Lawford the Company supplies the Borough of Harwich, the Urban districts of Walton and Frinton, and the parishes of Bradfield, Kirby, Lawford, Manningtree, Ramsey, Thorpe and Wix. There are several service reservoirs into which water is pumped and from which these places are supplied.

HARWICH. The Medical Officer of Health says the water maintains its high standard of excellence.

FRINTON. There was a temporary restriction of the supply during the season, otherwise the supply has been ample and of good quality.

TENDRING. The Medical Officer of Health says the Water Company supplies 11 parishes in the district "at not exorbitant rates and the quality of the water is good."

The following Sanitary Authorities possess waterworks for the supply of their areas :—

Group I. Districts in which the water derived from the chalk has the characteristics usually associated with water from this source :—Halstead, Saffron Walden.

Group 2. Districts in which the water derived from the chalk is very soft and contains sodium carbonate :—Colchester, Wivenhoe, Brightlingsea, Maldon, Witham, Braintree, Chelmsford U. and R., Shoeburyness, Roehford R. and Burnham.

HALSTEAD. The water is obtained from two deep wells in the chalk. "The old well cut from the top of the town near the water towers, is 300 ft. deep, whilst the newer boring constructed with the waterworks in 1891 is cut from nearer the river level, 254 ft. deep. The water is pumped by steam engines into two water towers situated at almost the highest point of the town, with capacities of 84,000 and 42,000 gallons respectively, from which a constant supply is obtainable over all parts of the Urban district. At the old waterworks a gas engine has been installed, which is used about one day a week to be available in an emergency should a breakdown occur to the other engine. It is estimated that about 140,000 gallons is pumped daily, equivalent to 20 gallons per head. The water is hard but very pure.

SAFFRON WALDEN. The public water supply of the town is derived from a deep bored well. The well was bored in 1899 into the chalk to a depth of 350 feet from the surface, and lined with steel tubes 8½ inches in diameter. The water is pumped by means of a Worthington pump capable of delivering 15,000 gallons of water per hour. The water before it is supplied to the town undergoes a softening process which has been in use since 1889, that is to say, ten years before the new well was bored. The hardness of the water, which is about 27 degrees before softening, is reduced to about 10 degrees after softening. The softening was undertaken chiefly for economic reasons and for improving generally the health and comfort of the

inhabitants, and I may here mention that whether due to the softening of the water or not, it is a fact that the general death-rate of the Borough has been reduced from a mean of 16·7 before softening to a mean of 14·9 since softening was adopted. The method adopted is the Clark Lime process, with depositing tanks and subsequent filtration through cloth filters. The water from the bored well has been analysed during the year with results very similar to those previously obtained, and show the water to be of a satisfactory degree of organic and bacteriological purity. During the year 36 premises have been connected with the water mains. The Hamlet of Swards End, on high ground about 400 feet above Ordnance Datum, has been supplied by public service since 1905, and the mains have been extended within the town. During the year the Hamlet of Little Walden has been supplied by means of a deep well in the chalk owned by E. B. Gibson, Esq. In the following table is given the rest level of the water in the bored well each month above Ordnance Datum, the average daily consumption of water during each month of 1909, in gallons, with the number of rainy days, and the rainfall in inches during each month of 1909, and the average for the past thirty-five years :—

Month.	Rest level in Bored Well.	Gallons Consumed Daily.	Rainy Days.		Rainfall in inches.	
			Average 35 years.	1909.	Average.	1909.
January ...	151·1	116,349	16	13	1·63	0·92
February ...	150·9	117,018	15	6	1·61	0·47
March ...	152·1	118,790	14	26	1·63	3·48
April ...	151·1	125,560	14	12	1·69	1·69
May ...	151·4	139,744	14	8	1·85	1·20
June ...	151·4	136,698	13	17	2·14	4·46
July ...	151·4	128,906	14	18	2·44	3·30
August ...	151·1	164,186	15	12	2·39	2·97
September ...	150·9	117,877	13	21	1·99	2·36
October ...	151·4	126,280	17	22	2·59	4·45
November ...	152·6	121,573	17	10	2·33	0·73
December ...	153·6	118,737	16	23	2·04	3·49
Total...	—	—	178	188	24·33	29·52

COLCHESTER. This Borough is supplied with a mixture of water from two sources, one a deep well in the chalk and the other from springs arising from the gravel beds at Lexden. Both are of excellent quality and apparently the supply is abundant.

BRIGHTLINGSEA. WIVENHOE. Each of these Urban districts has a public supply of water of excellent quality. The chalk water here, although it contains sodium carbonate, is harder than the water of central Essex, and the Medical Officer of Health for Brightlingsea suggests the desirability of softening it.

MALDON. The water is derived from the Thanet sands overlying the chalk, is of perfect purity and fairly soft. The supply is "intermittent" and averages 14 gallons per head per day.

WITHAM. A new supply was obtained for the town a few years ago and great difficulty was experienced in keeping out the sand which apparently was carried through fissures in the chalk into the bore tubes. The Medical Officer of Health, however, reports that the supply is now satisfactory.

BRAINTREE. One of the two wells here has been deepened to increase the supply. A gas plant for pumping purposes has been erected. At the trial pumping after deepening the yield was 360,000 gallons in the 24 hours, and the head of water was only lowered seven feet.

CHELMSFORD. The supply here is from a deep well and two gravel springs. The well and one spring supply one part of the town, the South Ward, and the second spring supplies the North Ward. The Springfield Ward, recently taken in from the Rural district, is supplied from the Great Baddow works of the Rural District Council. The waters are of good quality. The Medical Officer of Health reports "Very careful attention has been given to the condition of the water, fittings and the service pipes. The Borough Surveyor informs me that again a large number of leakages have been discovered and remedied, with the result that the South Ward is on a constant service. The North Ward, also, is on a constant service with the exception of Broomfield Road and New Street, which are shut off at 3 p.m.

CHELMSFORD R. There are several waterworks in this district. Ingatestone is supplied from a deep well in the chalk, already referred to. Writtle by a deep well in the Thanet sands. Great Baddow (and a portion of Chelmsford Borough) by a deep well and spring water. Danbury and several other parishes are supplied with spring water from works on Danbury Common. Great and Little Waltham have each village supplies from local springs.

SHOEBURYNESSE. The deep well here not yielding a sufficiently abundant supply for the town the bore has recently been deepened and the pumping arrangements improved. The Medical Officer of Health reports that the results are satisfactory, as the supply is now sufficient to meet all requirements, and that the water is of excellent quality.

ROCHFORD (R.) There is a public supply here to several important parishes. The water is derived from a deep well at South Benfleet and is forced to a tank on a tower near the top of Benfleet Hill. From here it flows by gravitation and supplies South Benfleet, Hadleigh, Hawkeswell, Rayleigh and Thundersley. Extensions have been made into Hockley parish and the construction of additional reservoirs has been considered.

BURNHAM. This small Urban district also has a public supply, the water being chiefly derived from a well 419 ft. deep. It does not reach the chalk. The supply is not very abundant. The last report of the Medical Officer of Health says, "The waterworks continue satisfactory. Periodical analyses shew the water to be of excellent quality. The quantity pumped is about 1,000,000 gallons a month, which gives a daily supply of 11 to 12 gallons per head. In the higher parts of the town, however, the pressure is at times deficient, so that the supply, especially on the upper floors of houses, is proportionately less than it should be."

The following Districts have public supplies derived from springs or wells sunk in beds of gravel:—

CLACTON. Water is derived from a well at Great Bentley, 12 miles from Clacton. The supply is abundant and excellent for all domestic purposes, and every house has the water laid on. The water flows by gravitation to the works in Clacton, where it is filtered through sand and pumped into an elevated tank which commands the town.

MALDON (R.) In this district there are three separate public waterworks.

At Tiptree water is derived from a gravel bed. It is pumped by means of a wind engine into a reservoir and by gravitation supplies most of the houses in Tiptree and a considerable quantity to the Tiptree Jam Factory. The water is of excellent quality but has a marked action on iron pipes.

At Southminster gravel springs furnish an abundant supply of pure water. The water is collected in an underground reservoir and pumped into a tank upon a tower sufficiently high to command the whole parish.

At Woodham Walter certain springs yielding in dry weather about 200,000 gallons of water a day are utilized for supplying nine parishes. The demands for extensions are met whenever possible, but the mains are now so long that balancing reservoirs near the extremities may have to be constructed. The water is pumped from the tank receiving the spring water into a tank on the hill side at barely sufficient elevation to command the whole area of supply at the time of maximum draught.

CHELMSFORD (R.) Besides the two works supplying Ingatestone and Writtle respectively and already referred to, there is a works on Danbury Common collecting water from two springs and supplying seven parishes. Some have to be supplied by pumping, others by gravitation. A new water tower is being erected on Danbury Hill. At Great Waltham there is a small spring supply, the water being raised by a ram. At Little Waltham water from a spring is piped to standpipes in the village.

From all public sources the Chelmsford Rural District Council supplies over one million gallons of water per week. This is probably a record for a rural district.

It will thus be seen that every Urban district in the County is supplied with water which is both (with probably one exception only) abundant in quantity and excellent in quality. In the Rural districts a large number of parishes is supplied with water from public sources, but there are some fairly populous parishes and many small parishes in which the water available is either not sufficiently abundant or is of unsatisfactory quality. The following may be mentioned :—

DUNMOW (R.) Thaxted has a population of about 1,700, and Bardfield Green, $\frac{3}{4}$ mile away, has a population of about 100. Water is derived from public and private wells. The Medical Officer of Health says: "This cannot be considered a satisfactory supply for a place with more than 100 hand-flushed water-closets, and I consider that a town so compact as Thaxted should have a supply laid on to every house."

BRAINTREE (R.) A deep well scheme is nearing completion and will supply Coggeshall and Kelvedon. A boring made to supply Bocking yielded an inadequate amount of water. The parish has a population of 3,500 and forms part of the town of Braintree. A public supply is much needed. Hatfield Peverel is another parish requiring a public supply, the local wells yielding water of unsatisfactory quality.

HALSTEAD (R.) The lower part of Earls Colne and White Colne are in need of a better supply of water. The upper part of Earls Colne is supplied by a main from Mr. R. Hunt's Ironworks.

LEXDEN AND WINSTREE (R.) There is an area here on the London clay, including Salcot, Virley, Abberton, Langenhoe, Laver Marney, and Laver-de-la-Haye, which is badly in need of a water supply. Water is very difficult to obtain. Certain very deep wells yield water which is either brackish or contains sulphate of magnesia.

MALDON (R.) Tollesbury, a growing yachting centre, and having a population of about 2,000, is dependent entirely upon badly constructed shallow wells. The Local Government Board sanctioned the expenditure necessary for a trial bore, but as there is no certainty of obtaining a satisfactory water, and the Parish Council oppose the scheme, the Maldon Rural District Council is still considering this matter. Heybridge is another growing parish with a population of nearly 2,000 persons which requires a water supply. A portion of the parish is supplied by a main from Messrs. Bantall's ironworks. Schemes for supplying both these places have been considered but as yet no definite action has been taken.

TENDRING (R.) In this district many problems relating to water supply are awaiting solution. Referring to them, the Medical Officer of Health says: "In my report for 1900 I gave an account of the water supply of every parish in the district. From their works opened about a year ago at Lawford, the Tendring Hundred Water Company supplies eleven parishes in this district, besides Dovercourt, Harwich, Frinton, and Walton-on-the-Naze. This company gives a very good supply at not exorbitant rates, and the quality of the water is good. Otherwise the supply is from shallow wells, which frequently give considerable trouble. In my report last year I referred to the water supply for the village of Great Bentley, and I regret to say that nothing further has been done. A new supply for the village of St. Osyth has been under consideration for some time, and efforts have been made to get the owners of houses to provide the supply, but this appears in some measure to be impracticable. The Council are about to consider the matter again, and, I have pointed out that, in supplying the Mill Street portion of the village a scheme should be adopted so that the entire village can get the benefit of the supply as it may be required. In Little Holland there is a large building estate for which no arrangement for a supply has yet been made, but I gather that the new Town Planning Act will cause this to be done. For some years I have endeavoured to get a new supply for the village of Ardleigh, without success. The Tendring Hundred Water Company, by their Act of Parliament, has the right of supply, but, having allowed five years to pass without having made the provision, the District Council now have the matter in their own hands. I have laid what I believe would be a good scheme before them, but nothing has been done."

The low rateable values, the scattered populations, and difficulties in finding local sources of supply, makes the water problem an exceedingly difficult one in most of our Rural districts.

3. POLLUTION OF RIVERS AND STREAMS.

The County is practically bounded on three sides by rivers and on the fourth by the North Sea.

The south boundary is the River Thames, the west the River Lee, and the north the River Stour. The rivers rising in the County flow either south or east, with the

exception of the tributaries of the Cam (in the Saffron Walden district), which have a northerly direction.

The rivers discharging into the Thames are the Lee, the Roding, the Rom, and the Ingrebourne. Those flowing eastward and discharging into the sea are the Roach, the Crouch, the Blackwater with its numerous tributaries draining the whole of central Essex, the Colne, the Holland Brook, and the Stour. A description of these streams is given in my Report on the Water Supplies of the County of Essex.

Since the County Council came into existence a good deal of attention has been given to the condition of the rivers and as a result many sewage purification works have been installed and a great deal of pollution prevented. Special attention has been given to the Roding Valley, as it contains a large population, and 10 or 15 years ago the river was little more than an open sewer. Its condition is now so improved that I am informed fish are once more seen in it. As the Lee and its tributaries, for a certain length, are under the control of the Lee Conservancy, and the Thames and its tributaries for three miles from the Thames are under the control of the Port of London, and as tidal streams do not come under the Rivers Pollution Prevention Act, the number of streams over which the County Council exercise supervision is limited.

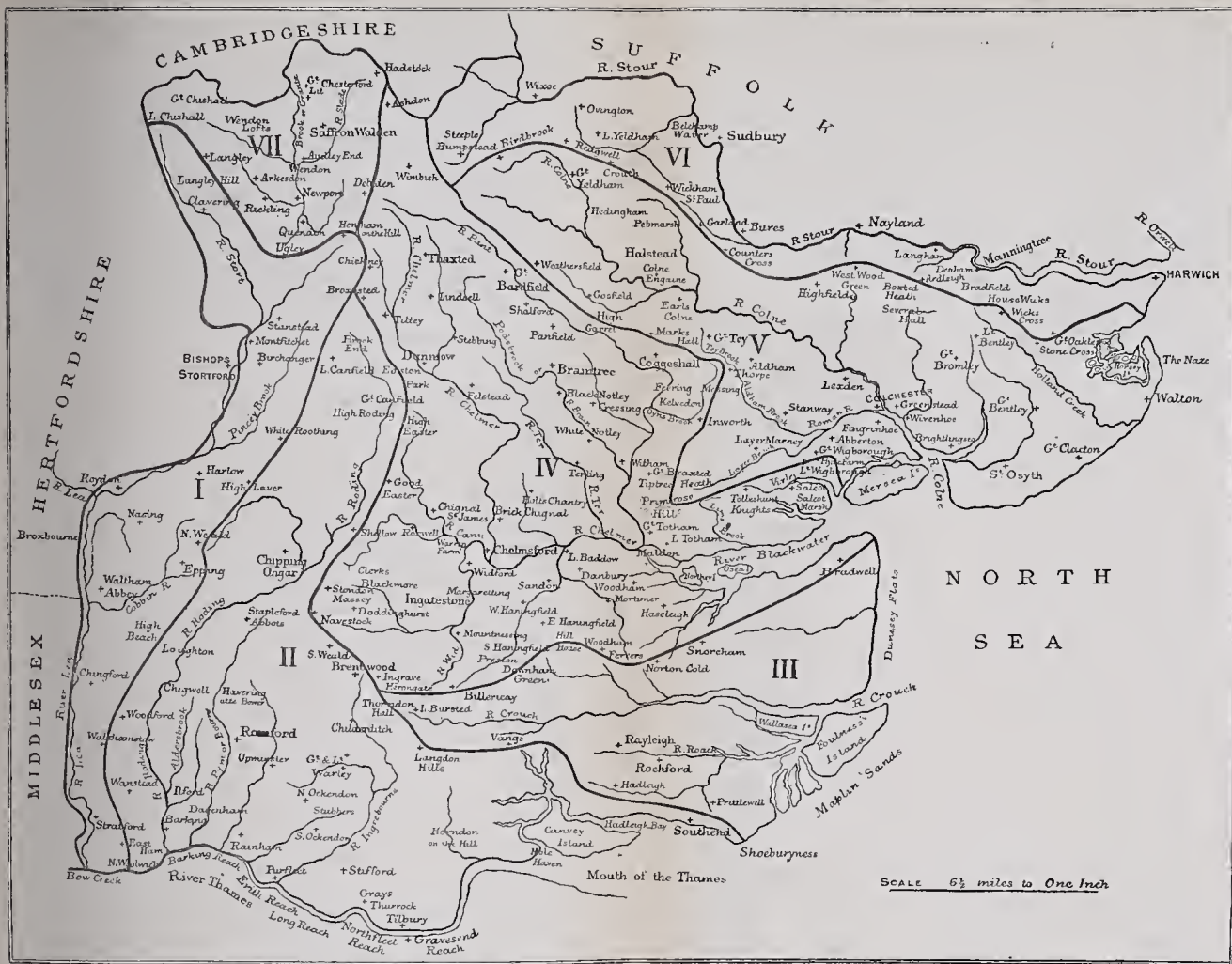
Complaints of pollution are comparatively few, probably due to the fact that, save the Lee, not one stream is used as a source of water supply, and as all flow through agricultural districts and have comparatively little fall the water is always more or less contaminated by the surface water from the land. Moreover where villages drain into ditches the visible discharge from these into rivers is often very small and sometimes nil. Heavy rains no doubt flush the contents of these ditches into the rivers, but the latter at such times contain such turbid waters that the added impurity passes unnoticed.

A fairly full description of all the sewage works in the County was given in a recent report, but improvements are continuously being effected.

Every Urban district possesses its sewage disposal works, if we except a few on the coast, which discharge their sewage directly into the sea or into a wide tidal creek. Most of these will be referred to when considering the rivers into which they drain. A map shewing all the streams in the County is appended. The thick lines show approximately the drainage area of the streams.

THE LEE VALLEY. Many sewage works drain into the Lee or its tributary the Stort, but in all cases, save one, the sewage is previously submitted to land or bacterial treatment. The following works are on the Essex side of the Lee :—Bishop Stortford, Stansted, Harlow, Waltham Abbey, Epping, Chingford, Woodford (western works), Walthamstow, and Leyton. At Leyton the sewage is treated with lime and other chemicals and the clarified effluent is not passed over land or through any filters. The whole of these works are under the supervision of the Lee Conservancy Board and the County Council exercises no control.

THE RODING VALLEY. This river receives little contaminating matter until it reaches High Ongar. This village and others above are not sewered and a certain amount of sewage gets into the stream, but probably the total pollution is really less than would be the case were the villages sewered and the whole of the effluents sent



into the river. From Ongar downwards the river receives the effluents from the following sewage works :—Ongar, intermittent land filtration ; Abridge, land treatment ; Loughton, sprinkler beds and land ; Buckhurst Hill, Chigwell, Woodford, and Wanstead, all with bacterial systems of treatment ; Barking, chemical treatment only ; and East Ham, chemical and bacterial treatment. The two last mentioned works discharging into the tidal portion of the river near the Thames are under the supervision of the Thames Authority. The other works are inspected by me at frequent intervals and large numbers of samples of river water and of effluents are examined each year. The Ilford sewage works—bacterial system—are in this valley but the outfall is directly into the Thames, just below Creeksmouth.

The condition of the Roding has markedly improved in recent years. Since the County Council first took an interest in its condition Ongar and Abridge have provided sewage works and every other work above Ilford has been greatly enlarged and improved. In some cases the works have been practically re-constructed. During the past year the greater part of Chigwell has been sewered and an excellent bacterial system of sewage treatment provided. The works at Wanstead having become too small, and building operations having almost reached their borders, the Urban District Council have approved of an improvement scheme which will cost many thousands of pounds. The present complaints are not so much on account of the works polluting the river, but of smells arising from the land and causing a nuisance in that portion of Ilford which is separated from the works only by the river. At all the supervised works the effluents produced almost invariably reach the standard accepted by the County Council. This standard will be referred to later. Occasionally samples have been taken which were not satisfactory, in which case an explanation is required. The usual explanation was carelessness on the part of some employee, but fortunately more skilled men are being appointed as sewage works managers, and the explanation is now rarely offered or accepted.

THE ROM VALLEY. This river receives effluents from the Romford sewage farm and from the Hornchurch sewage works. At the latter place the sewage passes in succession through septic tanks, contact beds and land. The farm outfalls are visited by the Thames Authority as it is within three miles of the River Thames. The effluent has always passed the County standard, and is probably the best produced in the County. At the Hornchurch works the effluents are not invariably satisfactory. For a long time past the river has been free from signs of pollution where we have jurisdiction.

THE INGREBOURNE VALLEY. Two sewage works discharge effluents into this stream, the Brentwood and South Weald works. The Brentwood works are to be entirely re-constructed on modern lines. The contract for the new works has been signed and they will be commenced at once. Great care is now being taken to produce the best possible effluent under existing conditions.

The South Weald works have only been in existence for a few years and practically have never produced a good effluent. During the year the Surveyor has constructed two sprinkler beds and the results so far have been eminently satisfactory.

THE CROUCH VALLEY. This river receives sewage from Billericay and effluents from Wickford and Burnham. The following quotation from the report of the Medical

Officer of Health for Billericay Rural District shows the position of affairs at Billericay:—

“ In my predecessor's report for 1900 he states: ‘ that in 1899 a Local Government Board enquiry was held and a system of drainage was approved for Billericay,’ and in a later report (1907) he says ‘ Plans for the drainage of Billericay and part of the adjoining parish of Mountnessing are completed and are before the Local Government Board.’ So far nothing has resulted and Billericay is still without its drainage. The delay is, I understand, due to the difficulty which has been experienced in securing the site for the outfall works. There are four large sewers and many smaller ones emptying themselves without any attempt at purification, chiefly into water courses, one of the sources of the River Crouch being very heavily polluted for a long distance.”

The Wickford works (Billericay Rural) have given rise to complaints, which I attributed to the pumping arrangements, as when pumping, the smell of putrid sewage was often perceptible some distance away. A number of improvements have recently been made and this nuisance has been effectually abated, but the effluent produced is not always up to the County standard. At Burnham the sewage is treated on contact beds but an indifferent effluent is produced. The chief oyster layings are some miles away below the outfall and the dilution which takes place in the tidal estuary is enormous.

THE THAMES VALLEY. The sewage or effluent from many towns and villages passes directly into the Thames. The North London outfall is at Barking, and whilst London pours into the river at this point many millions of gallons per day of very partially treated sewage it is difficult to see how the Thames Authority can stop the comparative trickles which take place from villages near the banks. As previously stated the Ilford effluent is also discharged into the Thames near the London outfall. The Dagenham and Rainham effluents, the result of bacterial treatment, also discharge at points comparatively near.

The Grays and Tilbury sewers discharge near Grays after treatment. West Thurrock sadly requires sewerage, and the possibility of connecting with the Grays and Tilbury system has long been under consideration. There is no difficulty in sewerage it separately and connecting up afterwards if the necessity ever arises. At the present time more money is being spent annually in emptying cesspools than would pay for a modern installation.

A small quantity of sewage enters the river at Benthley. This is previously treated with alumino-ferric, but inasmuch as the precipitate formed is allowed to run into the creek the addition probably serves no useful purpose. The following districts pass all their sewage or sewage effluent into the lower reaches of the Thames.

STANFORD-LE-HOPE. There is a small bacterial installation here which apparently gives satisfactory results.

LEIGH-ON-SEA. The sewage from this Urban district is treated on contact beds which the Surveyor has recently improved. Save when tidal water gets into the sewers the results obtained are satisfactory. The standard fixed, by arbitration, will be referred to later.

SOUTHEND-ON-SEA. At present the sewage is discharged into the Thames, but works are now being constructed in order to purify the sewage and to discharge it under water at all states of the tides. A certain standard of purity has to be attained, but if found unsatisfactory the Local Government Board has power to vary it. The probability, however, is that it will be fairly easily attainable and will prevent entirely any pollution of the foreshore.

Shoeburyness practically discharges its crude sewage into the sea or on to the Maplin Sands. Clacton, Walton, and Harwich also discharge sewage into the sea. There are a few undrained villages near the Thames in the Rochford Rural District but the amount of polluting matter which enters the Thames is infinitesimal, and when sewers are laid, and works constructed, far more organic matter will pass into the river than at present. The drainage from Hadleigh is entirely lost before the Thames is reached.

THE RIVER ROACH. The populous village of Rayleigh drains on one side into the Crouch valley and on the other into that of the Roach. Sooner or later it will require properly sewerage, &c. Certain ditches receiving sewage have given rise to complaints, but these ditches are so far from the rivers that it is doubtful whether any pollution occurs. Another populous village, Rochford, has a small sewage works which has been constructed little by little and is costly to maintain. It discharges into the Roach where it is tidal and some distance from any oyster layings. The conditions here have certainly improved in recent years.

The Blackwater and its tributaries practically drain the whole of central Essex and a strip to the extreme north beyond and including Thaxted. There is no doubt a certain amount of polluting matter entering all these rivulets and rivers. The chief sources of pollution are as under :—

The sewage of Thaxted and Dunmow entering the upper reach of the Chelmer, that of Coggeshall and Kelvedon entering the Pant, and that of Heybridge entering the Blackwater. The Heybridge sewage enters the river where it is tidal and therefore outside the jurisdiction of the County Council. The other parishes have received a certain amount of attention and plans have been prepared for sewerage Kelvedon and Dunmow, but the pressure put upon the Local Authorities has not been sufficient to cause any further action to be taken. No complaints about Thaxted, Dunmow, or Coggeshall have been received during the last two or three years. An enormous amount of polluting matter must be absorbed during the flow in the ditches before the river is reached, as but little enters the river and the analysis made of the streams above and below the outfalls show so little difference in the character of the water that the County Council has not as yet felt it a duty to take any drastic action.

In the Chelmsford area there is a large sewage farm purifying sewage from the Borough and part of the Rural District. The effluent is not of a high standard, but it does not markedly affect the Chelmer Navigation into which it is discharged. It is probable, however, that in the near future a higher standard will be required. The village of Ingatestone has a small sewage farm and the village of Writtle bacteria works both producing satisfactory effluents. The largest village in the district which is unsewered is Broomfield. Practically no sewage reaches the river, but the place is

growing so rapidly that sewers are becoming a necessity. A complete scheme for sewerage and sewage disposal has been prepared and is now under consideration.

In the Braintree area the town of Braintree has just provided a new sewage works, but Bocking, which is really a part of Braintree town, discharges its sewage into ditches which ultimately reach the River Brain. From time to time the necessity for disposal works comes up for consideration, but nothing has been done as yet.

The Borough of Maldon discharges its sewage into the tidal Blackwater. Several small outbreaks of Typhoid have occurred which were attributed to the eating of clams and other shell fish taken from near the outfall.

Tollesbury has small bacterial works and its effluent is discharged into the mouth of the Blackwater estuary.

THE COLNE VALLEY. Halstead and Colchester are the chief towns in this valley, but Brightlingsea and Wivenhoe are on the banks of the estuary.

Colchester has a large bacterial installation, Brightlingsea has a small precipitation works, but Wivenhoe discharges all its crude sewage into the river. As the river at all these places is tidal the County Council has no jurisdiction. Above Colchester there are many large villages draining more or less directly into the Colne. Earls Colne may be cited as an example. Some years ago the County Council desired the Halstead Rural District Council to take such steps as would prevent pollution occurring. Accordingly an eminent engineer was consulted and plans prepared. The estimated cost, however, was so enormous that the Rural District Council could not entertain it, and the County Council concluded that it would be unreasonable to enforce it. The pollution has never been the cause of complaint.

At Halstead the sewage farm has recently been improved by the addition of some Dibdin's slate beds, but until something is done with reference to the tannery effluent, which often comes down in large quantities, the river will continue to be polluted. More slate beds and contact beds are now in course of construction.

In the Stort valley there is one sewage works, of very modern type, at Dedham. Sudbury (Suffolk) discharges its effluent into this river, and has at least on one occasion given rise to pollution and complaint. Manningtree is the largest village on the river. Schemes for sewerage and sewage disposal have been considered but never carried out. The river here is tidal and of considerable width, so that the sewage is rapidly diluted and dispersed.

THE CAM VALLEY. The Borough of Saffron Walden has received sanction for works of sewerage and sewage disposal, which are estimated to cost £23,000. They are now in progress. Certain rivulets in this area are contaminated by ditches receiving slop water from the villages.

Reference has been made to the standards of purity for the effluents from the Leigh sludge works, the proposed Southend works, and for works discharging effluents into the non-tidal rivers in the County over which the County Council possess some measure of control. No single standard can be devised to meet all cases. The Royal Commission on sewage disposal would permit crude sewage, or merely strained or settled sewage to be passed into tidal waters, under certain conditions, but they

point out that near watering places and in localities where undesirable sea weeds flourish "only good sewage effluents from filter beds or from land treatment should be allowed to be discharged."

It seems probable, therefore, that in future, at watering places, towns on estuaries, near oyster layings, and on the banks of secluded waters where the *Ulua* grows, the effluents discharged will have to attain a standard almost, if not quite, as high as those discharged into non-tidal streams. The formulated standards for two such towns, Leigh and Southend, are as under :—

LEIGH. Standard agreed upon by arbitrators :—

1. The effluent shall be free from putrid odour and have no tendency to become putrid (this tendency to be determined by the three minutes oxygen absorbed test, applied to an average sample (1) immediately after collection and (2) after keeping excluded from air for five days at 98°F.) Should the effluent at the end of five days have developed an offensive odour and the oxygen absorbed by the incubated effluent exceed that absorbed by the fresh effluent, it shall be held to be unsatisfactory and not to conform to this requirement.

2. The effluent upon analysis shall conform to not less than three of the following requirements—

- (a) The suspended matter shall not exceed 3 grains per gallon.
- (b) The Albuminoid ammonia shall not exceed .15 grains per gallon.
- (c) The oxygen absorbed in three hours shall not exceed 1.5 grains per gallon.
- (d) The nitrogen in nitrites and nitrates shall be at least .25 grains per gallon.

So far this standard has given satisfaction. The single contact beds yield a good effluent save on occasions when sea water has gained access to the sewers. When this has occurred a marked deterioration of the effluent has immediately occurred.

SOUTHEND-ON-SEA. The following standard was accepted by Parliament :—

- (a) Each gallon shall not contain more than 4 grains of solid matter in suspension.
- (b) The effluent shall have no offensive odour, and when kept for three days at a temp. of 98°F. in a full-stoppered bottle shall not develop a putrefactive odour.
- (c) The impurity figure as ascertained by the method described in these regulations shall not exceed 16. This figure is calculated from the amount of albuminoid ammonia yielded by a gallon of effluent, and the oxygen absorbed from permanganate of potash by the same quantity.

The methods of collecting samples and making the determinations are, in both cases set out in detail in the Act.

The numerical standard I suggest, and use in Essex for non-tidal rivers is 10, and has hitherto been based on the two determinations given above, in grains per gallon, but I purpose in future basing it upon parts per 100,000, when I shall take 10 as being

very good and 14 (corresponding to the present 10) as passable. Any effluent up to this standard would, in my experience, comply with the standards suggested by the Royal Commission, and would not necessitate any additional determinations in the routine analysis of the effluent, though more complete examinations, from time to time, would be desirable.

The R.C. standard (Fifth report, p. 234) necessitates four additional determinations which in my opinion are unnecessary, and complicate and prolong the analysis.

The R.C. standard requires the estimation of :—

1. The suspended matter. (This is not to exceed 3 parts per 100,000).
2. The amount of atmospheric or dissolved oxygen absorbed in 24 hours. (This is not to exceed .5 parts per 100,000).
3. The amount of atmospheric or dissolved oxygen absorbed in 48 hours. (This is not to exceed 1.0 parts per 100,000).
4. The amount of atmospheric or dissolved oxygen absorbed in 5 days. (This is not to exceed 1.5 parts per 100,000).

These troublesome determinations, especially those at the end of 2 and 5 days, are unnecessary, the utmost information required would be given by the determination of the oxygen absorbed at the end of 24 hours, since if the effluent could not absorb oxygen more rapidly than this, it could not affect the degree of oxygenation of the most sluggish river. My opinion is that the proposed standard will not be generally adopted.

The standard based upon the oxygen absorbed from acid solution of permanganate is just as useful, is much simpler, less liable to error, and is completed in a few hours. The standard suggested by myself, based on two determinations, is still more reliable and involves no examinations beyond those usually made. There would be no objection to adding that also of the suspended matter, which should not exceed 3 parts per 100,000, though in my experience this is unnecessary, since any excess of suspended matter has its effect upon the oxygen absorbed and the albuminoid ammonia.

I should regard an effluent as good which gave upon analysis :—

Suspended matter not exceeding 3 parts per 100,000.

Albuminoid ammonia ,, .1 ,,

Oxygen absorbed in 4 hrs. ,, 1.0 ,,

and take its impurity figure as 10.

I should regard an effluent as passable which gave :—

Suspended matter not exceeding 4 parts per 100,000.

Albuminoid ammonia ,, .14 ,,

Oxygen absorbed in 4 hrs. ,, 1.4 ,,

and take its impurity figure as 14.

This would bring the numerical expression of the strength or impurity into line with that adopted by the Royal Commission for crude sewages, and the percentage improvement could be ascertained at a glance. Thus a crude sewage with strength 100, yielding upon treatment an effluent with strength 10, has been improved 90 per cent. This is a great advantage when reporting the results of analyses to Sanitary

authorities and others who do not understand the ordinary analytical results, and who merely want to know to what extent a sewage has been purified or whether the effluent can be considered as satisfactory, or, if unsatisfactory, to what extent it is unsatisfactory. This is easily expressed in figures, but expressed with great difficulty in words, or by analyses.

4. THE MIDWIVES ACT, 1902.

This Act is supervised by the County Sanitary Committee and the Midwives are visited by myself or assistants. A lady inspector assisted for a time but her services were found not to be required.

There are two large maternity charities working in the large Urban areas adjoining the metropolis. The "Maternity Charity" having its headquarters at Plaistow has a "Home" at East Ham and works in that Borough and in the adjoining district of Barking. The Essex County Cottage Nursing and Midwifery Association has its headquarters at Leyton, with a branch at Walthamstow. The latter has many Affiliated Branches throughout the County employing fully trained midwives.

In the extra-metropolitan area much trouble arises from the midwives constantly changing their addresses without giving notice. At each inspection several are found to have left and often their present address cannot be ascertained. Sometimes all efforts to trace them fail and they are assumed to have left the district.

Every midwife is visited at her home and her bag, books, etc., examined. Most of them are visited twice a year, especial attention being given to the unqualified women during the second inspection.

At the end of the year there were 292 midwives on the County roll, and of these 190 were qualified by examination. Some of the unqualified ones act only as monthly nurses or only take cases under a medical practitioner, except in emergencies, but they prefer to keep their names on the Roll.

The notices received from midwives were as under:—

Of calling in Medical Help ...	...	271
Of Still-births ...	...	88
Of death of Mother or Child	...	20
Total	...	<u>379</u>

Many of the most unsuitable women found during the earlier inspections have ceased to practice and agreed to their names being removed from the Register. There are still a few ignorant women practising, but they are in remote parishes and on an average do not attend more than three or four cases a year each.

Complaints received about the midwives are singularly few, and on occasion not substantiated when investigated.

During the whole year only two cases of puerperal fever occurred amongst all the cases attended by midwives, and both these occurred in the practices of trained and competent women.

One case occurred about which a complaint was received, but upon investigation it was found that the woman who attended was not a midwife and did not represent herself as such. Details of the case were laid before the Central Midwives Board, but as there was no proof that the woman called herself a midwife or practised midwifery habitually and for gain no action could be taken.

When a case of puerperal fever occurs the midwife is visited and printed instructions are given for her guidance with reference to disinfection, etc., and she is not allowed to continue her practice until the local medical officer of health and myself are assured that it is safe for her to do so.

Complaints were received regarding several women alleged to be practising and who were not on the Register. Two of these were members of the sect called "Peculiar People." They did not call themselves midwives and apparently did not act for "gain," consequently it has not been thought necessary to interfere, and it is very doubtful whether any interference is legally possible. Other women complained of only acted as midwives in emergencies. In most cases when these complaints are investigated it is found that the women only attend cases where a doctor has been "spoken for." In the thinly populated Rural districts there are many such women, who enjoy the confidence of the medical practitioners. The services of these gentlemen are engaged and when labour commences the nurse is called in and sends for the doctor as soon as his services are likely to be required. Sometimes birth has taken place before he arrives, and a complaint may then be laid against the nurse for acting as a midwife. To stop these women acting in this way would be a very serious matter and do far more harm than good. The Midwives Act was not intended to prevent women acting in this manner. At the same time I sympathise with the midwives living in such districts who find that they cannot possibly make a living.

The County Education Committee granted a few Scholarships enabling suitable women to be trained as midwives, but after being trained it was found that none of them could earn a livelihood, and the giving of such Scholarships is now discouraged. There is only one way of providing trained midwives for Rural districts and that is by forming local associations, each responsible for the woman receiving a living wage.

The following extract from the Report of the Essex County Nursing and Midwifery Association for 1909 shows that this is being done. "Neither midwives nor nurses can earn sufficient money in our rural districts, where these services are chiefly required, to maintain themselves, hence the importance of organising local branches to raise or guarantee a minimum salary." "Seven such centres have been formed during the year. There are now 61 local centres employing 66 nurses. In 43 of these centres the nurses undertake midwifery cases, and in the others the maternity patients are nursed under the care of a doctor. In almost every case the nurse is a qualified midwife, and could take up the work if it were necessary."

The paucity of complaints in this county is probably due to the fact that such a large proportion of the midwives now practising are fully trained, and that the worst of the unqualified ones have been persuaded to give up practice. There are nearly 300 more names on the Register of the Central Midwives Board than on the County Roll. Some time ago many of these were communicated with. Some letters were returned through the dead-letter office, marked "Gone, left no address." Others

were replied to and in all cases the replies were to the effect that they were not practising as midwives. Apparently a large number of women who only acted as monthly nurses secured registration as midwives under a misapprehension. If the Register could be corrected so as to include only women who act as midwives its bulk would be largely decreased.

5. THE COUNTY PUBLIC HEALTH LABORATORIES.

Recent progress in Sanitary Science has rendered it necessary that Sanitary Authorities should either possess well equipped laboratories or have an arrangement with the principal of such a laboratory for making the numerous bacteriological, microscopical, and chemical investigations required by Medical Officers of Health or the medical men practising in their districts.

Save in very large districts the cost of maintenance of such a laboratory is too great to be within the bounds of practicability. For this reason many County Councils, of which Essex was one of the first, have provided laboratories for the use of the various Urban and Rural Districts in their areas.

Such examinations as are referred to above require not only special apparatus and appliances such as few Medical Officers of Health or medical practitioners possess, but the investigations often require a considerable amount of time. For these reasons it is rarely possible for the Medical Officer of Health to undertake such examinations unless provided with a laboratory and assistants.

In the County Laboratory the whole of the work is done by skilled assistants under the supervision of the County Medical Officer of Health, who holds himself responsible for the accuracy of the results, and who is often able to tender valuable advice as the result of the investigations. The laboratory at Chelmsford was equipped by the County Medical Officer and approved by the County Sanitary Authority, and the scale of fees was fixed sufficiently low to encourage local authorities to avail themselves of the advantages offered. Many authorities and many private practitioners have so availed themselves and about 1,000 examinations were made last year, but there is reason to believe that to many the existence of the laboratory is still unknown.

All kinds of investigations bearing upon Public Health and which do not trench upon the domain of the Public Analyst are undertaken, and special arrangements are entered into with Sanitary Authorities for the periodic examination of their water supplies and sewage effluents, and for the bacteriological examinations necessary for the early diagnosis of infectious diseases, and for determining when a person is free from infection.

Several of the largest authorities defray all the expenses of the diagnosis of suspected cases of Diphtheria, and some pay also for the diagnosis of Typhoid Fever, Phthisis, Ringworm, &c. The County Laboratory supplies the local Medical Officer of Health with all the necessary outfits free of charge, and these, duly stamped with the official stamp of the Authority, are supplied on application, to any medical men requiring them. They are returned by the practitioners direct to the laboratory and immediately the examination is completed a telegram is dispatched giving the result and a letter follows.

The managers of several Isolation Hospitals have arranged for the examination of swabs from all Diphtheria patients prior to their discharge, thus freeing themselves from a great responsibility and limiting the number of return cases.

School authorities could, with advantage, arrange for the examination of the hair of children suspected to be suffering from Ringworm, or said to have recovered from the disease. The infection is chiefly spread by persons who appear to have recovered as it is impossible to say whether recovery is complete without a microscopic examination of the hair to determine whether the fungus has been destroyed.

Bacteriological examinations are also necessary for the diagnosis of Phthisis in its early stage, and where the means of the patients is limited the Guardians or Sanitary Authorities would be well advised to pay the small fee necessary for the examination.

The advantage of having the various sources of water supply examined at frequent intervals is almost too obvious to need remark, yet it is to the neglect of this precaution and to lack of supervision over the sources of supply that many outbreaks of disease can be attributed.

Under Section 7 of the Public Health (Water) Act, 1878, it is "the duty of every Rural Sanitary Authority from time to time to take such steps as may be necessary to ascertain the condition of the water supply within their district, and the Authority may pay all reasonable costs and expenses incurred by them for the purpose of taking such steps."

Under Section 6 of the same Act certificates have to be granted to new houses if the water supply is wholesome, &c., and if the supply is not satisfactory it is illegal for such a house to be inhabited. Many Authorities instruct their Inspectors to examine the source of supply and to take a sample of water for analysis, such analysis being, in some instances paid for by the Authority, in others by the owner of the house. In all cases the Inspector should take the sample, and examine the source of supply. He, the Inspector, is then responsible for the source being satisfactory, and the Medical Officer of Health, after receiving the analytical report, will give the opinion as to its being wholesome or otherwise.

The question often arises whether a chemical or bacteriological examination of a water should be made, or both. Usually it is best to leave this to the discretion of the examiner. A chemical analysis is absolutely necessary, a bacteriological examination may or may not be necessary. At the County Laboratory it is usual to examine the water chemically and if the results leave any doubt about the wholesomeness of the water to apply such bacteriological tests as may be necessary to arrive at a definite conclusion. No extra fee is charged in such cases.

Several Authorities have recently submitted samples of milk for microscopic examination (for dirt) and for bacteriological examination. The results have afterwards been communicated to the vendors and has resulted in greater care and cleanliness being observed. The bacteriological results have also led to the discovery of cows suffering from mastitis. Such milk on many occasions has been known to cause epidemics of Tonsillitis, sometimes of so severe a character as to have caused death.

Many samples of milk have been examined for Tubercle bacilli, but to obtain definite and reliable results it is generally necessary to inoculate guinea pigs with the

deposit obtained by centrifugalising the milk. By arrangement the inoculation is done at an institution possessing the necessary license for experiments on animals.

Among other work undertaken may be mentioned the examination of oysters, cockles, clams, and other shellfish suspected of having given rise to Typhoid Fever, of samples of food supposed to have caused ptomaine poisoning, the examination of blood, urine, &c., in obscure cases of disease.

Bottles and cases suitable for samples of water are sent upon application, and special outfits for any purpose specified, conforming with the Post Office regulations. The necessary instructions for taking specimens, samples, &c., accompany each outfit.

Unless otherwise denoted on the paper accompanying the specimen it is taken that the sender is responsible for the payment of the fees.

Some of the districts near London or in the south and west of the County find London a much more suitable centre than Chelmsford for consultations, etc., and some preferring to deliver samples by hand send them to the London Hospital and the examinations are made there by Dr. Beale, who is Demonstrator in the Public Health Laboratories under my charge. I attend on Mondays and Thursdays and see far more officials and have far more County appointments there than at Chelmsford.

All examinations for the County Council Sanitary Committee, Education Committee, and Asylum Committee are made free of charge. Examinations made for Local Authorities and others in the County are charged the following scale of fees :—

SCALE OF FEES.

BACTERIOLOGICAL DEPARTMENT.				£	s.	d.
Diphtheria, examination of swab	...	...		0	2	6
Enteric Fever, „ of blood	...	.		0	2	6
Phthisis „ of sputum	...	...		0	2	6
Ringworm „ of hair	...	...		0	2	6
or 3 specimens sent at same time	...			0	5	0
Blood films, examination of	..	...		0	2	6
Milk, estimation of bacteria in	...	...		0	5	0
„ examination for “ dirt ”	...	...		0	2	6
„ Bacteriological examination of	...	...		1	1	0
Water, „ „	...	...		1	1	0

CHEMICAL DEPARTMENT.

Sewage and Sewage Effluents	...	...	0	10	6
„ more extended examination by method suggested by the Royal Commission	...	...	1	1	0
Potable Waters	...	...	1	1	0

Fees for other examinations are quoted upon application.

The examinations made during 1909 were as under :—

CHEMICAL DEPARTMENT,

Potable Waters	...	...	...	...	211
Effluents and River Waters	...	...	...	...	124
Various	...	...	...	...	7
Total	...	...	...	...	<u>342</u>

BACTERIOLOGICAL DEPARTMENT.

Diphtheria diagnosis	...	...	...	...	509
Typhoid Fever	„	...	...	...	33
Plithisis	„	...	...	...	68
Ringworm	„	...	...	...	39
Waters, potable, examined	...	...	...	...	90
Milk	...	...	...	...	10
Various	...	...	...	...	17
Total	...	...	...	...	<u>766</u>
Grand Total	...	...	...	...	<u><u>1108</u></u>

The work is certainly increasing and chiefly in consequence of the medical inspection of school children. Probably every day now samples of hair are received for examination for the ringworm fungus. The results shew how difficult it is to thoroughly eradicate this disease, as hairs from children reported to be cured are frequently found to be affected. Similarly patients who have apparently recovered from diphtheria are found to harbour the infecting bacillus for lengthened periods. These facts are, of course, well known to the profession, but they are not sufficiently well known to school managers, teachers, and others.

6. ADMINISTRATION OF THE FOOD AND DRUGS ACT.

The County Sanitary Committee takes no part in this administration. In the metropolitan district the duties under the Acts are carried out by the Metropolitan District Committee, and in the remainder of the County by the Parliamentary Committee. Save from the reports of these Committees and a few notes in the Medical Officer of Healths' reports I know nothing of the work done. I have had complaints addressed to me and some Medical Officers of Health think that more samples should be taken from their districts. I refer complainants to the Committees concerned or to the official Inspectors under the Act.

7. ALTERATIONS OF BOUNDARIES.

I am not aware that any alterations have been made during the year.

The Medical Officer of Health for Brentwood has referred to the somewhat anomalous position of that town, which consists of the Urban area and parts of two parishes in the adjacent Rural districts. He says in the report for the past year :—

“ There is comparatively little building land left in Brentwood itself, but the adjoining parts of the surrounding parishes have become so thickly populated and so incorporated with Brentwood, as to form apparently one large town, and it is only necessary to bring the whole populous area under one Authority, in order that the Sanitary Administration might be facilitated and rendered satisfactory.”

Braintree is another town in which a considerable proportion of the town is in the Rural district. One half of Braintree proper has a good water supply, and a system of sewers and a modern sewage disposal works, the other half, Bocking, possesses none of these necessities. The extension of the Urban area has often been discussed, but the Medical Officers of Health concerned do not refer to the subject.

8. OTHER MATTERS REFERRED TO IN THE ANNUAL REPORTS.

All the reports have been summarised in a systematic manner, under the following headings :—(1) Physical features of the district, (2) Occupation of the inhabitants, (3) House accommodation, (4) Water supply, (5) Food inspection, (6) Sewerage and drainage, (7) Pollution of streams, (8) Excrement disposal, (9) Nuisances, (10) Byelaws, (11) Schools, sanitary condition of, (12) Methods of dealing with infectious disease, (13) Control of tuberculosis, and (14) Factories and workshops. Particulars on all these points are required by the Local Government Board, as already stated in the introduction to this report. To summarise the whole as has been done in case of Water Supplies, etc., would render the report very voluminous, and as all the information required is not contained in many reports a County summary would be very defective. For these reasons such summaries have not been prepared.

9. INSPECTORS OF NUISANCES' REPORTS.

It is to be regretted that all the Medical Officers of Health do not submit a tabulated statement in the form sent out by the County Council. The form is possibly not the best which could be devised, but the Association of Inspectors might do a good work by devising a form which would be generally applicable.

In comparing the subjoined Tables care must be taken not to draw erroneous conclusions. For example, there may be two Urban districts each with six dairies and milkshops, and these may have been inspected monthly, yet one Inspector will state under the heading of “ Dairies and milkshops inspected ” 6 and the other 72. Other discrepancies of a similar character may occur.

In many reports a special report by the Chief Inspector is included. These often supplement the Medical Officer of Health's report, but on occasions the same information is given in both.

Full reports are furnished by Messrs. H. Wood (Barking), W. K. Baker (Chelmsford), T. Wells (Colchester), J. G. Banks (East Ham), F. W. King (Ilford), H. Miller (Leyton), and W. W. West (Walthamstow).

TABLE XXXI.
URBAN DISTRICTS.
SUMMARY OF REPORTS BY SANITARY INSPECTORS.

	Barking.	Brentwood.	Brightlingsea.	Buckhurst Hill.	Burnham.	Chelmsford.	Chingford.	Clacton.	Colchester.	East Ham	Epping.	Frinton.	Grays.	Halstead.	Harwich.	Ilford.	Leigh-on-Sea.	Leyton.	Loughton.	Maldon.	Romford.	Saffron Walden	Shoeburyness	Southeast on-Sea.	Waltham Holy Cross.	Walthamstow.	Walton-on-the-Naze.	Wanstead. †	Wivenhoe.	Witham.	Woodford.	
1. Complaints received ...	118	11	43	8	17	19	55	18	6	474	996	11	15	71	18	..	253	35	402	17	12	39	11	..	189	31	241	14	30	2	5	21
2. Nuisances detected without complaint ...	1809	41	334	21	11	48	789	46	159	303	..	81	21	431	141	..	1214	166	..	11	57	310	30	..	..	290	5211	54	45	13	10	191
3. Nuisances abated ...	1475	36	373	29	26	65	715	44	157	717	..	75	31	485	134	..	1150	201	..	28	69	331	41	..	1537	362	5425	65	68	12	15	306
4. Notices served ...	79	37	7	2	..	6	99	30	130	768	..	..	33	229	99	..	1149	201	4516	6	41	316	27	..	614	10	73	18	21	9	..	11
5. Summonses taken out ...	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	2	..	..	..	..	..	..
6. Convictions ...	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..
7. Cottages inspected ...	2516	182	393	375	..	163	921	291	471	3429	..	210	48	979	335	..	3298	98	4375	47	600	398	79	..	2181	203	5506	113	100	267	..	168
8. Lodging-houses inspected ...	7	..	1	..	..	..	2	..	..	2	..	1	..	2	..	..	..	..	..	..	2	2	..	..	..	..	..	92	..	..	..	..
9. Slaughter-houses inspected ...	4	9	8	6	24	5	9	3	4	23	..	4	..	5	40	..	5	2	..	3	4	8	5	..	191	84	15	2	2	1	4	28
10. Bake-houses inspected ...	18	19	9	14	44	6	20	3	9	49	407	6	2	9	26	..	33	8	..	5	9	15	13	..	289	44	56	5	4	..	29	..
11. Dairies and Milk Shops inspected ...	42	1	3	..	68	6	12	12	23	221	..	5	4	32	32	..	55	10	..	7	26	9	..	..	355	31	193	4	11	4	..	23
12. Cowsheds inspected ...	3	6	..	..	3	3	7	11	5	55	..	4	1	1	16	..	10	12	..	7	16	14	..	..	57	72	16	3	5	1	..	14
13. Workshops inspected ...	58	26	90	22	129	18	91	7	86	401	573	16	13	50	62	..	495	..	..	23	..	9	73	..	..	36	445	10	9	2	..	178
14. Filthy houses cleansed, sec. 46, Public Health Act, 1875 ...	..	..	..	..	2	..	..	1	..	..	1	..	8	..	..	..	41	6	..	..	5	5	..	..	4	24	196	..	..	..	2	2
15. Houses disinfected ...	294	7	66	11	26	1	37	25	99	364	..	13	4	66	9	..	469	47	616	51	14	131	12	..	553	37	827	2	13	2	12	45
16. Overcrowding abated ...	21	1	..	..	2	..	..	2	..	18	..	1	..	3	6	..	..	..	32	3	..	4	..	..	3	8	54	..	..	..	..	5
17. Houses placed in habitable repair ...	..	..	1	..	16	..	..	1	..	4	..	..	2	..	..	3	3	1323	..	..	..	..	7	..	..	23	..	..	..	..	..	..
18. Houses closed ...	..	4	3	..	..	..	..	..	..	7	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	5	..	..	..
19. Houses erected or re-built for which Water "Certificates" were applied for ...	..	..	37	5	3	118	..	..	51	..	12	..	..	7	..	..	..	..	..	32	..	..	..	..	..	15	..	6	..	3	10	..

30. "Certificates" granted deferred	...	37	4	...	...	...	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...</
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++ For 6 months only except Nos. 25 & 26.

TABLE XXXII.
RURAL DISTRICTS.

SUMMARY OF REPORTS BY SANITARY INSPECTORS.

	Belbamp.	Billericay East.	Billericay West.	Braintree.	Bumpstead.	Chelmsford.	Dunmow.	Epping.	Halstead No. 1.	Halstead No. 2.	Lexden and Winstree.	Maldon.	Ongar.	Orsett.	Roehford.	Roehford, 1st div.	Roehford, 2nd div.	Saffron Walden.	Stunsted.	Tendring.
1. Complaints received ...	18	23	31	16	8	17	45	49	4	17	15	16	6	40	...	...	35	4	...	27
2. Nuisances detected without complaint ...	73	177	165	105	36	298	366	...	94	79	162	208	90	255	...	...	217	109	125	93
3. Nuisances abated ...	87	182	186	115	44	278	352	...	88	84	157	208	90	295	...	...	232	108	125	81
4. Notices served ...	25	36	91	122	7	263	166	...	54	23	25	123	6	...	...	...	159	113	15	12
5. Summonses taken out ...	...	...	...	9	...	1	1	...	...	1	...	3	...	8	...	...	1	1	...	1
6. Convictions ...	...	...	...	...	...	1	1	...	...	...	...	2	...	2	...	...	1	1	...	4
7. Cottages inspected ...	311	145	384	124	296	1272	539	409	680	355	1227	1035	194	360	...	...	579	294	420	518
8. Lodging-houses inspected ...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...
9. Slaughter-houses inspected ...	3	6	6	26	2	12	17	35	7	9	15	23	7	15	...	...	5	10	24	14
10. Bakehouses inspected ...	...	17	10	42	8	36	36	79	9	29	34	32	2	17	...	...	6	30	14	22
11. Dairies and Milk Shops inspected ...	4	11	39	40	37	107	55	201	28	7	8	37	...	41	...	...	14	27	...	88
12. Cowsheds inspected ...	8	38	66	64	37	107	81	201	28	25	15	91	98	45	...	...	12	27	50	...
13. Workshops inspected ...	33	12	21	61	28	86	111	124	46	56	16	65	...	42	...	...	14	120	72	53
14. Filthy houses cleansed, sec. 46, Public Health Act, 1875 ...	...	...	2	1	...	2	6	...	2	...	3	...	...	2	...	...	5	...	...	...
15. Houses disinfected ...	12	15	55	83	2	48	41	87	7	2	56	25	27	147	...	...	71	18	1	75
16. Overcrowding abated ...	...	1	1	3	2	5	10	8	3	2	4	3	...	3	...	...	...	2	...	3
17. Houses placed in habitable repair ...	4	2	3	18	...	9	29	17	8	11	27	7	2	...	...	...	18	...	15	1
18. Houses closed ...	6	...	...	2	...	1	1	...	...	2	...	5	1	5	...	...	2	...	...	...

10. CHIEF IMPROVEMENTS EFFECTED AND FURTHER IMPROVEMENTS REQUIRED.

I can only repeat here what was said in the last Annual Report. It is very much to be regretted that Medical Officers of Health do not, as a rule, give a brief summary at the end of their reports of the Improvements effected and of the Improvements required. This would be of especial value to the Sanitary Authority. In many reports neither of these matters are referred to and it is only by carefully going over the reports that anything can be learned about the improvements effected, and usually there are no indications whatever as to the improvements required. A district must be in a very excellent condition indeed if no further improvement is necessary, and if any improvement is necessary it is the duty of the Medical Officer of Health to point it out to the Authority. This pointing out of sanitary requirements is the most important function of the Medical Officer and if he fails in this duty it is not to be expected that the Sanitary Administration can be effective.

In some reports improvements are recorded which had never previously been referred to as necessary. If they were necessary, and about this there can be no doubt, reference should have been made to the requirements in previous reports.

From recent reports the "Improvements required," so far as they can be ascertained, have been tabulated, and the remarks opposite to each indicates the steps taken during the year to effect them.

Urban Districts.	Improvements required.	Improvements recorded in 1909 and Remarks.
BARKING ..	.. 1900. Better system of sewage treatment and sewerage of Creeksmouth. 1900. Improved ventilation of sewers and relaying of old sewers. 1900. Refuse destructor. 1902. Public sanitary conveniences for both sexes 1904. New nursing home and administration block required at hospital. 1909. Laboratory required. „ Building bye-laws, addition to. „ Urinals for women.	Some progress made.
BRAINTREE ..	.. 1904. Free treatment of all cases at Isolation Hospital.	
BRENTWOOD ..	.. 1900. A public mortuary. „ An ambulance. 1905. Removal of refuse by Council's employees. 1906. Improved disposal of refuse. „ Improved system of sewerage and sewage disposal. 1907. The provision of an Isolation Hospital and disinfectant.	A scheme has been approved by the L.G.B.
BRIGHTLINGSEA ..	.. 1907. Washing utensils in cowsheds. „ Provision of diphtheria antitoxin. 1909. Making up of roads.	
BUCKHURST HILL ..		
BURNHAM-ON-CROUCH ..	.. 1900. Flushing apparatus to w.c's. 1906. Public sanitary convenience. 1907. Suitable Isolation Hospital.	

Urban Districts.	Improvements required.	Improvements recorded in 1909 and Remarks.
CHELMSFORD ..	.. 1900. An additional and reserve water supply. 1902. Veterinary Inspector for milch cows. 1903. Refuse destructor and more frequent removal of house refuse. 1905. Sewer ventilation. 1909. Provision for the reception of cases of typhoid fever.	Now being provided.
CHINGFORD ..	.. 1909. Insanitary condition of Railway Company's premises.	Provided. Considerable additions made to the Hospital, including residence for Medical Officer.
CLACTON ..	.. 1902. Refuse destructor. 1906. Sewerage of Bocking's Elm and Coppin's Wick.	Premises and appliances adapted for cleansing verminous persons.
COLCHESTER ..	.. 1908. Improved accommodation at Isolation Hospital. 1908. Improved regulations for dairies and cowsheds. 1909. Water supply to w.c's.	Now provided.
EAST HAM ..	.. 1906. New mortuary. 1908. Discharge block at Isolation Hospital. 1908. Public Health offices. 1909. Covered public swimming bath.	Improvements being effected. Being improved.
EPPING ..	.. 1907. Flushing cisterns for w.c's. 1908. Adoption of certain sections of the Public Health Acts Amendment Act, 1907. 1908. Scarcity of suitable houses for the need of the district. 1908. Covered carts for the removal of house refuse.	Appointed. Loan applied for. Now added.
FRINTON ..	.. 1907. New cemetery.	Improved method of disinfection adopted.
GRAYS ..	.. 1905. Improvements at sewage works.	
HALSTEAD ..	.. 1904. Re-sewering of the south side of High Street. 1908. Storm waters should be diverted from sewers. 1908. Better ventilation of sewers 1908. Improvements at sewage outfall works. 1908. A public abattoir. 1909. Better sanitary dustbins. .. Second covered cart for refuse.	
HARWICH ..	.. 1907. Improved ventilation of sewers in upper portions of the town. 1908. House drains require more attention and drainage of Upper Dovercourt. 1908. More supervision over slaughter-houses and dairy farms.	
ILFORD ..	.. 1905. Female Sanitary Inspector. 1906. Provision of dust destructor. .. Additional block at Isolation Hospital.	
LEIGH ..	.. 1908. Better system of dust and refuse collection. 1909. An Isolation Hospital. .. Making up of new roads.	

Urban Districts.			Improvements required.	Improvements recorded in 1909 and Remarks.
LEYTON	..	..	1901. Permanent Isolation Hospital.	Temporary hospital has been enlarged. Approaching completion.
			.. More public sanitary conveniences. 1907. More Sanitary Inspectors.	
LOUGHTON	..	..	1908. More frequent removal of house refuse.	
MALDON	..	..	1901. Treatment of sewage before discharge into river.	
ROMFORD	..	..	1907. Flushing apparatus for w.c's.	
SAFFRON WALDEN	..	..	1900. Better system of sewage disposal and extension of sewers.	Scheme has been approved by the L.G.B.
SHOEBURYNESSE	..	..	1907. An increased water supply.	
SOUTHEND-ON-SEA	..	..	1908. Sewage disposal works.	Sewerage Bill passed and works commenced Extended where required. Loan sanctioned. New ward block added. New and improved urinals provided.
		..	.. Extension of sewers.	
		..	.. Dust destructor.	
		..	.. Enlargement of Hospital	
		1909.	Making up of new streets and back passages.	
		..	.. More frequent removal of refuse.	
		..	.. More active measures against tuberculosis.	
		..	.. More Isolation Hospital accommodation.	
		..	.. Daily cleansing of shelters, etc.	
		..	.. A public abattoir.	
		..	.. Powers to inspect store places of ice cream vendors, fruit hawkers, etc.	
		..	.. Improved bye-laws relating to tents, vans, etc.	
		..	.. Revision of building bye-laws.	
		..	.. Adoption of certain sections of Public Health Acts Amendment Act, 1907.	
		..	.. Bye-laws relating to keeping poultry.	
		..	.. Bye-laws relating to houses let in lodgings.	
		..	.. The taking of more samples of milk.	
WALTHAM HOLY CROSS	..	..	1909. Sewerage of Upshire, High Beech, and Sewardstone.	
WALTHAMSTOW	..	..	1909. More adequate provision for disposal of sewage.	
		..	.. More public conveniences.	
		..	.. An improved disinfecting station.	
WALTON-ON-THE-NAZE	..	..	1903. Isolation Hospital accommodation.	
WIVENHOE	..	..	1909. Dead wells cause nuisances. Sewerage ?	
WANSTEAD	..	..	1907. Ventilation shafts for sewers.	
WITHAM	..	..	1900. Isolation Hospital.	
		..	1909 Improvements in sewers and sewage disposal work.	
WOODFORD	..	..	1908. Prevention of dust from motor traffic.	
Rural Districts.				
BELCHAMP	..	..	1901. Isolation Hospital.	
		..	1906. More district nurses.	

Rural Districts.	Improvements required.	Improvements recorded in 1909 and Remarks.
BILLERICAY ..	1905. Water supply for Basildon, Laindon, and elsewhere. 1907. Improvements of Brook Street sewage works. 1900-1909. Sewerage of Billericay referred to annually. 1909. More houses for working classes. .. Improved regulations for dairies, etc. .. Improved and enlarged Hospital.	In part provided. Completed.
BRAINTREE ..	1900 Building bye-laws. 1907. Water supply to Bocking and Coggeshall. 1908. Sewerage of Kelvedon. .. Sewerage at Hatfield Peverel.	Apparently not since referred to. Now being provided for Coggeshall & Kelvedon. Scheme submitted to Parish Council.
BUMPSTEAD ..	..	
CHELMSFORD ..	1901. Water supply for Stock. 1906. Sewerage for Broomfield. .. Water supplies for West Hanningfield and Buttsbury. 1907. Water supply for Broomfield. 1908. Improved drainage of Little Waltham and Woodham Ferris.	Often considered. No feasible scheme yet suggested. Scheme prepared. No scheme yet devised at a reasonable expense. Scheme prepared.
DUNMOW ..	1908. Better sewerage and system of sewage disposal at Dunmow and Thaxted.	Scheme for Dunmow under consideration.
EPPING ..	1908. Better housing accommodation to relieve overcrowding. 1909. Sewerage of Roydon, Potter Street, North Weald Gullett, and Sheering.	
HALSTEAD I. ..	1908. Water supply for Earls Colne and White Colne. 1908. Building bye-laws.	
HALSTEAD II...	1903. Bye-laws for drainage and for keeping and slaughtering of animals. 1908. The drainage of several parishes requires attention.	
LEXDEN & WINSTREE ..	1902. Sewerage of West Mersea, Rowhedge, and Stanway. 1903. Proper Isolation Hospital. 1905. Better examination of water supplies to cottages. 1907. Improved water supplies at Wigboroughs, West Mersea, and Abberton. 1908. Provision of portable ashbins where contractors remove refuse.	
MALDON ..	1908. Water supply for Tollesbury and Heybridge. 1908. Extended scavenging at Tolleshunt D'Arcy. 1908. Improved sewerage system at Southminster.	Under consideration. Now extended. Slight improvement effected.
ONGAR ..	1900. Isolation Hospital. 1909. Sewerage of High Ongar.	
ORSETT ..	1902. Drainage at West Thurrock and Aveley. 1904. Water supply to Laindon Hills and elsewhere.	Pressing. Plans prepared.

Rural Districts.	Improvements required.	Improvements recorded in 1909 and Remarks.
ROCHFORD ..	.. 1900. Drainage for Rayleigh, Hadleigh, South Benfleet, Great Wakering, and Rochford.	Certain improvements have been effected to prevent nuisances arising.
ROMFORD ..	.. 1907. Completion of Dagenham sewerage scheme. 1908. Systematic inspection of house drains.	Completed. Stopped on account of a magisterial decision.
SAFFRON WALDEN	.. 1904. Sewerage systems for Newport and Great Chesterford, if they can be provided at reasonable cost. 1908. Scavenging of Great Chesterford.	Now adopted.
STANSTED ..	.. 1907. More cottages for the working classes.	
TENDRING ..	.. 1900. Sewerage of Manningtree, Mistley, Lawford, Thorpe, Little Clacton, and Great Bentley. 1905. An Isolation Hospital for a combined district. 1906. Water supply to Ardleigh 1908. Water supply to St. Osyth and Bentley.	

APPENDIX.

SUMMARY OF REPORTS OF MEDICAL OFFICERS OF HEALTH.

I. PORT SANITARY DISTRICTS.

PORT OF COLCHESTER.

Medical Officer of Health ... C. A. S. LING, M.R.C.S., Brightlingsea.

No cases of infectious disease was imported or occurred in the Colne during 1909.

417 vessels were inspected, viz. :—

340 barges plying between Colchester and London.

16 steam ships.

19 yachts.

33 coasting vessels, etc.

Five of the vessels only required special attention, and the requirements of the Medical Officer of Health were carried out satisfactorily.

PORT OF HARWICH.

Medical Officer of Health ... H. GURNEY, L.R.C.P., M.R.C.S., Dovercourt.

No case of infectious disease reported. The hospital ship, *Hope*, is ready for any emergency, but another has been purchased and will be fitted up as a relief ship. When cholera occurred in Rotterdam in August medical inspection of passengers and crew was carried out. Only one case caused temporary anxiety. 1,445 vessels arrived at the port from foreign parts and 2,681 coastwise.

This year has been rendered notable at the Port of Harwich by the advent of the Foreign Meat and Unsound Food Regulations. Owing to this control being an innovation the work during the year has been very heavy. I believe, however, that it will become more manageable in succeeding years as it becomes fully recognised by importers that an efficient method of inspection prevails.

This belief is strengthened by the experience of the past year, during which a noticeable improvement in the condition and quality of the food stuffs entering here has taken place.

Appended are the quantities approximately of food stuffs dealt with :—

		Tons.	Cwts.	Qrs.	Lbs.	Tons.	Cwts.	Qrs.	Lbs.
Notices served requiring Exportation as									
Foreign Meat of Class I.	...	2	2	0	14				
						2	2	0	14
Notices served requiring Exportation as									
Foreign Meat of Class II.	...	0	10	3	0				
						0	10	3	0
Destroyed as diseased ;—									
Rabbits...	...	0	0	0	5				
Pigs Offal	...	0	0	2	14				
Beast and Calves Offal	...	0	3	1	14				
Sheeps Offal	...	3	3	3	0				
Pork	...	0	4	3	0				
						3	12	2	5
Destroyed as Unsound :—									
Fish and Shell Fish	...	0	9	3	0				
Canned Goods	...	0	9	1	0				
Fruit	...	3	9	3	0				
Vegetables	...	0	17	0	14				
Yeast	...	0	0	0	14				
Sheeps Offal	...	0	2	0	0				
Poultry (1)	...	0	0	0	9				
Pigs Offal	...	2	1	2	0				
Beasts and Calves Offal	...	0	5	1	0				
Pork	...	1	14	1	0				
						9	9	0	9
Total	...					15	14	2	0

In twenty-one instances the cause of destruction was tuberculosis, several cases being of a military type.

In 93 per cent. of the cases where it was found necessary to destroy meat and offal by reason of its diseased condition an official certificate accompanied the consignment as a guarantee that it had been examined and found free from any disease which might render it unfit for human food. No samples have been taken for analysis but special attention will be directed to this branch in the future as occasion requires. From time to time it has been found necessary to take the advice of Dr. Coutts (Special Foods Inspector of the Local Government Board), and he has paid two visits each of several days' duration to superintend the working of the Regulations.

I have personally paid repeated visits to Parkeston Quay and am pleased to report to you that the work of inspection has been performed in an eminently satisfactory manner and the same may also be said of Felixstowe Docks and other parts of the port. The expert microscopical work carried out by Dr. Harker has proved on several occasions very valuable in determining questions as to which doubt existed.

PORT OF MALDON.

Medical Officer of Health ... H. REYNOLDS BROWN, M.A., M.D., C.M.

During the year no case of infectious disease occurred.

1,044 vessels entered the port from the coast, and 22 from abroad. Many were inspected, but no sanitary defects were discovered. The port authority has the use of the Joint Hospital at Heybridge.

There is no meat trade at this port.

II. URBAN DISTRICTS.

BARKING.

Medical Officer of Health	...	A. BYGOTT, M.D., D.P.H.	
Area in acres	...	...	3,813
Population, 1901 census	...	...	21,547
„ 1909 estimated	...	...	30,351
Deaths registered in the district	...	...	339
Corrections	...	Additions	50
„	...	Deductions	—
Nett deaths	...	...	389
Mean for previous			
1909. 10 years.			
Nett Death-rate	...	12·8	13·3
Zymotic Death-rate	...	1·4	2·9
Infantile Mortality	...	107	149·6
Birth-rate	...	28·5	33·6
Cases of disease notified per 1,000	...	...	...
population	...	9·3	10·3

The report is printed.

Physical features of the District. Is on the north bank of the Thames, with the River Roding flowing through it. Subsoil chiefly gravel. Elevation varies from 6 to 28 ft. + O.D.

Occupation of the Inhabitants. Many are engaged at the Beckton Gasworks, some in farm work, including a large number of women. The increased train facilities are bringing a large number of persons engaged in regular and more lucrative employment in London, and the population will probably increase considerably.

House Accommodation. There appears to be no shortage of houses for those able to pay from 5s. 6d. per week rent. The Council owns 72 at 5s. 6d. a week and 85 at 6s. 6d. a week. More extended power is required in reference to the plaster used in the construction of dwellings. That often used crumbles away and renders the rooms unsightly, and affords an excellent resting place for disease germs.

Water Supply. From the mains of the South Essex Co., and is good and sufficient. Twenty-three houses are supplied from shallow wells and three have no supply.

Milk Supply. The milk coming into the district deserves the strong criticism, often appearing in sanitary reports. There are three dairies in the district, one of which will shortly be closed. There is no veterinary inspection of cows. The provision of covered receptacles in milk shops is insisted upon.

Food Inspection. Unsound animals were slaughtered in one slaughterhouse and a ton of meat was seized and condemned. The Medical Officer of Health refers to the difficulties encountered in inspecting meat, fish, etc. Forty-five samples were taken by the County Council Inspector under the Food and Drugs Act. Two samples of butter were found to be adulterated.

Sewerage and Drainage. The combined system obtains in the greater part of the town, but on the Kennedy Estate the sewage and surface water are collected in separate sewers. A sewer is urgently needed at Crocksinmouth. Urinals for women are required at the railway station without payment.

Pollution of Streams. The effluent discharged into the Roding has not given rise to complaint. Two large firms drain into the river, but attempts are being made to stop this pollution.

Excrement Disposal. The sewage is precipitated with alumina, and a large amount of sludge consequently accumulates. Negotiations are in progress for the reception of the sewage in the L.C.C. sewers.

Removal and Disposal of House Refuse. Many dustbins are unsatisfactory. Increasing difficulty is found in obtaining land for the deposit of refuse. At one tip a fly nuisance occurs in summer. On the bank of the Thames there is a large private dust shoot.

Nuisances. There are three offensive trades in the district, one of which, blood drying, has given risen to a serious nuisance. Attempts have been made to establish other offensive trades, but these have been frustrated. There are 16 fish fryers and these sometimes cause a nuisance. Application has been made to the Local Government Board for power to declare the dressing of fish skins, the business of fish fryers, and of rag and bone dealers to be offensive trades. A very large number of nuisances appear to have been detected and abated. (*Vide* Inspector's summary.)

Byelaws. An additional byelaw is suggested to define the floor level of houses built on low-lying land.

Schools, Sanitary Condition of. (Satisfactory.)

Methods of dealing with Infectious Disease. Dr. Bygott has established a laboratory for the bacteriological diagnosis of disease. A hospital is provided for 50 patients. Its enlargement or the provision of more permanent buildings is not advocated at present.

Control of Tuberculosis. Cases are visited by a lady inspector. Printed instructions are distributed. Addresses are given in schools, mothers' meetings, etc., by the Medical Officer of Health or Lady Inspector. A special dispensary and the utilization of space at the isolation hospital for treatment is advocated.

Factories and Workshops. These include manufacture of gas, chemical manure, disinfectants, sheep dip, tar, muriatic acid, varnish and paint, glass bottles, various offensive trades, india rubber mills, and iron foundries. A Swedish firm is about to erect a factory for making matches, which will employ about 1,000 persons. All existing works appear to be conducted under satisfactory conditions, but in many cases the closet accommodation is unsatisfactory, owing to the difficulties of drainage.

Besides the above, the report deals with changes in staff (Dr. Bygott only commenced duties on August 1st), details of cases of tuberculosis, Notification of Births Act and methods adopted for care of infants, ambulance service, etc., and a report by the chief Sanitary Inspector is appended.

BRAINTREE.

Medical Officer of Health . . . PERCY STEVENS, L.R.C.P., M.R.C.S.

Area in acres	...	...	...	2,224
Population, 1901 census	...	...	...	5,330
„ 1909 estimated	...	...	...	5,330
Deaths registered in the district	...	...	...	60
Corrections	...	Additions	...	13
„	...	Deductions	...	0
Nett deaths	...	...	...	73
				Mean for previous 10 years.
Nett Death-rate	...	1909.	...	15·1
Zymotic Death-rate	...	13·6	...	·62
Infantile Mortality	...	·4	...	82
Birth-rate	...	23	...	23
Cases of disease notified per 1,000 population	...	24·3	...	5
	...	1·5	...	

The report is in manuscript and very brief.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation. Fourteen plans of houses have been approved.

Water Supply. The work of deepening No. 1 well and fixing gas plant has been completed, and the supply is now ample.

Milk Supply. The one milkshop is satisfactory. The five cowsheds have been inspected twice during the year and have been regularly whitewashed and kept clean.

Food Inspection, &c. The nine slaughterhouses have been inspected. One has been re-built on modern lines. The remaining eight have been kept in good condition, but the close proximity of one to occupied dwelling houses renders it unsuitable for use as a slaughterhouse.

Sewerage and Drainage. The new works of sewerage and sewage disposal are being carried out.

Pollution of Rivers and Streams.

Excrement Disposal.

Removal of House Refuse.

Nuisances. 41 detected, 36 abated.

Byelaws.

Schools.

Methods of dealing with Infectious Disease. Small hospital for infectious disease is provided by Braintree Urban and Rural District Councils.

Methods of Control of Tuberculosis. The Council have undertaken to disinfect dwellings where cases occur.

Factories and Workshops. Bakehouses have been inspected twice and kept limewashed. No lists of outworkers have been received.

BRENTWOOD.

Medical Officer of Health ... S. FRAZER, L.R.C.P., L.R.C.S. ED.

Area in acres	...	...	...	460
Population, 1901 census	...	...	...	4,932
„ 1909 estimated	...	...	...	8,095
Deaths registered in the district	...	...	...	78
Corrections	...	Additions	...	7
„	...	Deductions	...	12
Nett deaths	...	...	...	73
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909. 9·6	... 10·1
Zymotic Death-rate	...	...	9	... 6
Infantile Mortality	...	...	81	... 98
Birth-rate	...	...	15·2	... 18·3
Cases of disease notified per 1,000				
population	...	..	10·5	... 4·5

The report is printed.

Physical features of the District. There is comparatively little building land left in the district; and the adjoining parts of the surrounding Rural Districts have become so thickly populated that it is necessary to bring the whole populous area under one authority to render the sanitary administration satisfactory. The soil is chiefly clay, and as the town is situated on the edge of the London basin water appears in springs at some points. The surface water runs into a small brook.

Occupations of Inhabitants. Many of the residents have their occupations in London, the remainder being employed in business premises and workshops. Brewing, brickmaking, and the manufacture of agricultural implements are the principal industries.

House Accommodation. This is satisfactory. No overcrowding has been detected, and no action under the Housing Acts has been needed. Thirty-seven new houses have been erected.

Water Supply. This is from South Essex Waterworks Co. and is satisfactory. In 32 houses the storage tanks were not satisfactory and the drinking water has, in consequence, been taken direct from the mains. In new houses it is usual to provide for the drinking water supply in this manner.

Milk Supply. The three dairies are regularly inspected. In one case there is still room for improvement.

Food Inspection. The slaughterhouses are fairly satisfactory.

Sewerage and Drainage. The improvement scheme has been approved by the Local Government Board and will shortly be carried out.

Pollution of Rivers and Streams.

Excrement Disposal. By water carriage. Only a few hand-flushed cottages remain.

Removal of House Refuse. The refuse is carted away weekly in closed vans by a Contractor to dumping grounds. The expediency of providing a destructor should be considered by the Council.

Nuisances. 377 have been dealt with and all have been abated.

Byelaws. They have been revised so as to conform to modern requirements and are now carried out without opposition.

Schools. The sanitary arrangements and water supply are satisfactory.

Methods for control of Infectious Disease. Notification ; house visited ; case removed to hospital where possible ; premises and contents disinfected and cleansed by spraying and by a Thresh's Portable Disinfector. During an epidemic of scarlet fever in the spring there was house-to-house visitation and five schools were cleansed and disinfected. There is no Isolation Hospital. Cases are sent to Billericay, but this hospital is too small for the two districts.

Methods of control of Tuberculosis.

Factories and Workshops. Bakehouses, workshops and workplaces have been regularly inspected and found satisfactory.

BRIGHTLINGSEA.

Medical Officer of Health ... E. P. DICKIN, M.D., C.M.

Area in acres	...	...	..	2,867
Population, 1901 census	...	...	...	4,501
„ 1909 estimated	...	...	...	5,012
Deaths registered in the district	...	...	...	48
Corrections	...	Additions	...	3
„	...	Deductions	...	0
Nett deaths	...	...	...	51
				Mean for previous 10 years.
Nett Death-rate	...	...	1909.	10 ... 13
Zymotic Death-rate	...	...	0	8
Infantile Mortality	...	...	44.4	... 88
Birth-rate	...	...	18.6	... 22.6
Cases of disease notified per 1,000 population	...	...	7.7	... 4.3

The report is printed.

Physical features of the District. The town is built on sand and gravel and faces south. It is situated between two arms of the tidal estuary and the River Colne.

Occupations of Inhabitants. Yachting, fishing, and oyster culture. Many women are employed in tailoring work at their homes.

House Accommodation. This is good and adequate.

Water Supply. This is provided by the Council from two deep wells. It is very hard and might, perhaps, be chemically treated for this before distribution. The shallow wells which have been condemned have not been closed.

Milk Supply. Generally speaking, it is good. The need of power to compel the provision of washing utensils for the milkers is still apparent.

Food Inspection. The slaughterhouses are regularly inspected and no tuberculous meat has been discovered.

Sewerage and Drainage. The drains and sewers are in good condition. The sewage is treated at the works on the alumino-ferrie precipitation system, and the affluent is discharged two hours after high water and carried out to sea.

Pollution of Rivers and Streams. The tidal waters are kept as free from pollution as possible on account of the oyster culture in them. No manure may be unloaded.

Excrement Disposal. Water carriage in general use. There are a large number of slop closets but they are kept so clean that they probably use more water than the tank type.

Removal of House Refuse is satisfactory.

Nuisances. (See table.)

Byelaws are in force dealing with new streets and buildings, nuisances, slaughterhouses and the water supply.

Schools are well lighted and ventilated.

Methods of dealing with Infectious Disease. These seem to be satisfactory. The Council do not provide antitoxin for the treatment of diphtheria.

Methods of control of Tuberculosis. Voluntary notification has been adopted and the Council provide for the bacteriological examination of sputum and for disinfection.

Factories and Workshops. Bakehouses are satisfactory. Several workshops on the waterside are not provided with sanitary conveniences. The Council has had this remedied in one instance.

BUCKHURST HILL.

Medical Officer of Health ... C. R. DYKES, M.R.C.S., L.R.C.P.

Area in acres	...	...	...	873
Population, 1901 census	...	...	...	4,786
„ 1909 estimated	...	...	...	5,300
Deaths registered in the district	...	...	...	64
Corrections	...	Additions	...	9
„	...	Deductions	...	8
Nett deaths	...	...	...	65
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	...
Zymotic Death-rate	...	...	12·2	...
Infantile Mortality	...	...	·6	...
Birth-rate	...	...	61·8	...
Cases of disease notified per 1,000	...	...	18·3	...
population	...	...	4·7	...
				3·7

The report is printed.

Physical features of the District. It is situated on the ridge of land between the valleys of the Rivers Ching and Roding. The subsoil is principally clay.

Occupations of Inhabitants. The district is chiefly residential.

House Accommodation. On the whole this is satisfactory. Only three new houses have been erected during the year. No action has been taken under the Housing of the Working Classes Acts.

Water Supply is from the Metropolitan Water Board's deep wells and is adequate.

Milk Supply is chiefly produced within the district and surrounding country.

Food Inspection, &c. The two slaughterhouses are inspected. No unsound food has been seized.

Sewerage and Drainage. A new sprinkler has been provided for one of the filter beds at the Council's works which deal with the sewage from the eastern slope of the hill. That from the western slope is dealt with at the Woodford western works. Some improvements have been made to drains and sewers.

Pollutions of Rivers and Streams.

Excrement Disposal. Water closets connected to sewers.

Removal and Disposal of House Refuse. Collected weekly by the Council's men.

Nuisances. Twenty-six out of 28 nuisances recorded were abated.

Byelaws.

Schools, Sanitary Condition of. Is good. Increased closet accommodation is being provided at St. John's School.

Infectious Diseases, method of dealing with. Cases are removed to the Waltham Joint Hospital. The bacteriological diagnosis of diphtheria is adopted. Disinfection by formalin spray and steam disinfectant.

Control of Tuberculosis. Only poor-law cases are notifiable. There is no hospital accommodation. Disinfection is offered after death or removal of a patient, but in only one instance was the offer accepted.

Factories and Workshops. Register given. Systematically inspected.

BURNHAM-ON-CROUCH.

Medical Officer of Health ... W. C. P. SMITH, M.R.C.S., L.R.C.P., D.P.H.

Area in acres	...	...	...	4,517
Population, 1901 census	...	...	...	2,919
„ 1909 estimated	...	...	...	3,328
Deaths registered in the district	...	...	...	42
Corrections	...	Additions	...	—
„	...	Deductions	...	—
Nett deaths	...	...	...	42
Nett Death-rate	..	...	1909. 12·6	Mean for previous 10 years. 10·3 (for years 1907-8)
Zymotic Death-rate	...	...	·3	1·4
Infantile Mortality	...	...	54	78
Birth-rate	...	...	16·5	26·3
Cases of disease notified per 1,000 population	...	...	·6	8·9

The report is printed and very brief.

Physical features of the District.

Occupations of Inhabitants.

House Accommodation.

Water Supply. Continues satisfactory. Daily supply 11 to 12 gallons per head. In higher parts of the town the pressure is at times deficient.

Milk Supply. Dairies and milkshops are inspected.

Food Inspection. The five slaughterhouses are inspected. No tuberculous meat has been seized.

Sewerage and Drainage.

Pollution of Streams.

Excrement Disposal. Bacteria beds at the sewage works continue to produce a very satisfactory effluent. Only one privy remains in the district and 29 pail closets.

Removal and Disposal of House Refuse.

Nuisances.

Byelaws.

Schools.

Method of dealing with Infectious Disease. There is an isolation cottage but it was not used during the year.

Control of Tuberculosis.

Factories and Workshops. Have been inspected.

CHELMSFORD.

Medical Officer of Health ... H. W. NEWTON, M.R.C.S., L.R.C.P., D.P.H.

Area in acres	...	...	...	3,015
Population, 1901 census	...	...	...	12,580
„ 1909 estimated	...	...	...	17,590
Deaths registered in the district	...	...	...	181
Corrections	...	Additions	...	—
„	...	Deductions	...	40
Nett deaths	...	...	...	141
				Mean for previous 10 years.
Nett Death-rate	...	...	1909. 8	12·5
Zymotic Death-rate	...	...	·34	1
Infantile Mortality	...	...	52·5	92·7
Birth-rate	...	...	18·4	24·1
Cases of disease notified per 1,000 population	...	...	2·6	7·1

The report is printed.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation. There is an adequate supply of houses in the borough. Much time is expended on house-to-house inspection. Schemes under the Housing of the Working Classes Act for workmen's dwellings are under consideration. The only complaint against the present housing is "high rentals."

Water Supply. The public supply is derived from two springs and a deep well, save for the portion of Springfield recently included in the borough. This part is supplied from the Great Baddow works of the Chelmsford Rural District Council. The average supply is 17 gallons per head per day. The question of providing a further supply has not apparently been discussed. The Medical Officer of Health is of opinion that a reserve is necessary in the event of one of these sources failing. The waters are unpolluted and fit for drinking purposes. Practically the whole town now has a constant water service.

Milk Supply. When necessary the Veterinary Inspector examines cows. Thirty samples of milk were examined. In one blood and pus were found. When the cows were examined one showed evidence of tubercular disease and mastitis. This was removed from the herd and destroyed. The Medical Officer of Health urges the appointment of a Veterinary Inspector to make systematic inspections. The result of the inspection of the dairies and cowsheds was most satisfactory.

Food Supply. The cattle market is regularly inspected by the Veterinary Surgeon appointed for the purpose. Five animals were seized and destroyed during the year. Legal proceedings followed in three instances. The result of these inspections is that the quality of the animals exposed for sale has improved.

Sewerage and Drainage. The Waterhouse Estate has been sewered, and various sewer extensions are chronicled. Some sewer ventilators have been erected, but more are needed. The arrangements generally are believed to be very satisfactory. Sixty acres of land at the sewage farm has been underdrained, and eight more acres are to be similarly treated.

Pollution of Streams.

Excrement Disposal. Water closets alone are in use, and the number of such without a proper water supply is being steadily decreased.

Removal and Disposal of House Refuse. This is removed weekly by the Council's men. More frequent removal is advocated. The refuse is chiefly tipped in the adjoining Rural District. A refuse destructor has long been talked about but is not yet provided.

Nuisances, &c. There are two offensive trades in the borough, one a fellmonger and the other a tallow melter. Both are old established. A prosecution was undertaken against the latter at the instigation of inhabitants of the High Street, but was unsuccessful. The business was shewn to be well conducted and there was no evidence of injury to health. A report by the Inspector of Nuisances is appended, shewing, *inter alia*, that 789 nuisances were detected during the year and 715 abated.

Byelaws.

Schools, Sanitary Condition of.

Method of dealing with Infectious Disease. As previously reported. The borough and the Rural District possess a Joint Hospital. The temporary hospital at Galleywood is used for convalescent scarlet fever patients. The Medical Officer of Health

says there is no arrangement for typhoid patients and no adequate discharge or convalescent block.

Control of Tuberculosis. The Medical Officer of Health having suggested that pulmonary tuberculosis should be added to those notifiable diseases at present, recognised, a communication was sent thereon to the Local Government Board but the Board did not encourage the idea and it was dropped. (*Vide* section on phthisis.) Practically after every death from phthisis efficient cleansing and disinfection is enforced.

Workshops and Factories. All regularly inspected.

CHINGFORD.

Medical Officer of Health ... GEO. W. FULCHER, M.B., C.M.

Area in acres	...	...	...	2,807
Population, 1901 census	...	...	...	4,372
„ 1909 estimated	...	...	...	7,717
Deaths registered in the district	...	...	...	71
Corrections	...	Additions	...	9
„	...	Deductions	...	16
Nett deaths	...	...	...	64
				Mean for previous 10 years.
Nett Death-rate	...	1909.	...	10.4
Zymotic Death-rate	...	0	...	1.2
Infantile Mortality	...	40	...	113
Birth-rate	...	22.5	...	23.2
Cases of disease notified per 1,000 population	...	5.3	...	6.75

The report is printed.

Physical features of the District. Occupation of Inhabitants. House Accommodation. The soil is London clay. The higher and northern portion abuts on the forest and abounds with villa residences. Considerable building has taken place of recent years in the southern district, partly small villas, and partly tenement houses, occupied chiefly by people whose occupation lies in London or its suburbs. The housing accommodation is adequate.

Water Supply. From the Metropolitan Water Board's works.

Milk Supply. Derived chiefly from the district itself. Dairies, cowsheds and milk shops are periodically inspected.

Food Inspection. Slaughterhouses, bakeries, etc., are inspected and supervision exercised over all food supplies.

Sewerage and Drainage. Efficient in all parts of the district. Nearly all houses are provided with water closets, but there is an outlying portion of the area not yet sewered where closets and cesspools are used

Pollution of Streams.

Excrement Disposal. The sewage is treated bacterially and the effluent causes no pollution.

Removal and Disposal of House Refuse. Removed weekly by a contractor, whose service is efficient.

Nuisances. Forty-six were detected and 44 abated. Insanitary conditions at the railway station are referred to.

Byelaws.

Schools, Sanitary Condition of. Satisfactory generally both as to sanitation generally and water supply. The accommodation for scholars is ample.

Methods of dealing with Infectious Disease. After notification the Medical Officer of Health visits, and if deemed advisable, orders removal to the conjoint hospital at Waltham Abbey. The infected houses, clothing, bedding, etc., are disinfected.

Control of Tuberculosis. On the death of a patient rooms are disinfected.

Factories and Workshops.

Referring to the prevalence of infectious diseases amongst the poorer classes, the Medical Officer of Health thinks these classes are markedly deteriorating. The sense of cleanliness, decency, and thrift, which was once a characteristic of the poor, has largely disappeared; family discipline also has declined.

CLACTON-ON-SEA.

Medical Officer of Health			...	J. W. COOK, M.D.	
Area in acres	...	...	...	4,074	
Population, 1901 census	...	...	...	7,453	
„ 1909 estimated	...	...	...	8,078	
Deaths registered in the district			...	96	
Corrections	...	Additions	...	7	
„	...	Deductions	...	2	
Nett deaths	...	...	...	101	
				Mean for previous	
			1909.	10 years.	
Nett Death-rate	...	...	12·5	...	12·5
Zymotic Death-rate	...	...	·4	...	1·1
Infantile Mortality	...	...	48·6	...	120·8
Birth-rate	...	...	22·9	...	24·5
Cases of disease notified per 1,000					
population	...	...	7·6	...	9·4

The report is printed.

Physical features of the District. The district is on the London clay, which here and there is covered with gravel. Climate dry, bracing and cheerful, with more sunshine than any other seaside resort near London.

Occupation of Inhabitants. A purely residential district, full of visitors in summer.

House Accommodation. Most of the houses are of a modern type, and there are sufficient for present requirements. The rent is high for working people, but by letting in summer "the rent is easily procured."

Water Supply. Spring or subsoil water is collected at Great Bentley, 12 miles away and is filtered in the town before distribution. Abundant and excellent, and every house has the supply laid on.

Milk Supply. Some milk is brought from a distance. Monthly examinations of the milk are made and it is rare now for a sample to fall below the standard. Cowsheds and dairies are inspected.

Food Inspection. The Medical Officer of Health and Inspector frequently visit slaughterhouses and butcher's shops.

Sewerage and Drainage. Well sewered, save at Bocking's Elm and Coppin's Wick. All house drains are well intercepted and ventilated.

Pollution of Streams. The solitary small stream in the district is not polluted.

Excrement Disposal. The sewers discharge by two outlets well out to sea. There is a large storm relief sewer.

Removal and Disposal of House Refuse. Removal weekly by the Council's men. In summer a more frequent removal takes place. It is deposited outside the town. A refuse destructor near the electricity works might prove economical.

Nuisances. Well attended to. Chief source of nuisance is deposit of rubbish on vacant building plots.

Byelaws. Extra powers are given by a local Act. Building bye-laws are modern. Byelaws for houses let in lodgings would be useful.

Schools, Sanitary Condition of. All satisfactory. Water from the town's mains.

Methods of dealing with Infectious Diseases. Inspector obtains all necessary details. Ambulance removes patients to hospital, and house bedding and clothing are disinfected. Children from infected houses are formally excluded from school. The hospital is very complete and of great benefit.

Control of Tuberculosis. Phthisis is voluntarily notifiable, but only one out of 15 fatal cases was notified. Compulsory notification is advocated. Where phthisical patients are known to have occupied rooms, these are afterwards disinfected.

Factories and Workshops. The list comprises 14 factories, 60 workshops, and 16 workplaces. No nuisances were discovered therein during the year.

COLCHESTER.

Medical Officer of Health ... WALTER L. CORFIELD, M.B., B.S., D.P.H.

Area in acres	...	...	...	11,324
Population, 1901 census	...	...	...	38,373
„ 1909 estimated	...	...	...	41,835
Deaths registered in the district	...	...	...	516
Corrections	...	Additions	...	4
„	...	Deductions	...	25
Nett deaths	...	...	...	495

			1909.	Mean for previous 10 years.
Nett Death-rate	...	...	11.8	13.7
Zymotic Death-rate	...	...	.7	1.5
Infantile Mortality	...	...	89	119
Birth-rate	...	...	23.8	25
Cases of disease notified per 1,000 population	...	...	4.1	6.3

The report is printed.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation.

Water Supply. The monthly bacteriological examinations gave satisfactory results. The report of the Waterworks Superintendent shews that the supply was 17.7 gallons per head for all purposes, including road watering, fire extinguishing, sewer flushing, and trade purposes.

Milk Supply. The Sanitary Inspector regularly visits all dairies, cowsheds, etc. The necessity for grooming cows and of greater cleanliness in milking is referred to.

Food Supplies. No food seized or destroyed. Slaughterhouses are inspected. Ninety samples of food etc., were examined by the Borough Analyst and five found sophisticated. Only one prosecution was instituted.

Sewerage and Drainage.

Pollution of Streams.

Excrement Disposal.

Removal and Disposal of House Refuse.

Nuisances. A house-to-house inspection is taking place. 3,429 houses were inspected during the year. Altogether 685 nuisances were detected or reported and 629 abated.

Byelaws.

Schools, Sanitary Condition of. (Now given in the separate report of the School Medical Officer.)

Methods of dealing with Infectious Disease. The isolation hospital is being enlarged. Bacteriological methods are adopted in combating diphtheria infection. Mention is made of two persons who had been in contact with diphtheria patients, but who did not themselves suffer from diphtheria who showed the presence of the diphtheria bacilli in the throats for months afterwards.

Control of Tuberculosis. The health authority supplies a printed list of precautions that the (phthisical) patient can study at his leisure, and he can also obtain a pocket-spitting flask at the cost price of 5d. from the Public Health Office.

Factories and Workshops. There are 520 on the register. All defects found have been or are being remedied.

EAST HAM.

Medical Officer of Health ... G. SOWDEN, M.D., D.P.H.

Area in acres	...	...	...	3,326
Population, 1901 census	...	...	...	96,018
„ 1909 estimated	...	...	...	149,575
Deaths registered in the district	...	...	...	1,160
Corrections	...	Additions	...	278
„	...	Deductions	...	26
Nett deaths	...	...	...	1,412
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	...
Zymotic Death-rate	...	...	9.4	...
Infantile Mortality	...	...	1.2	...
Birth-rate	...	...	95	...
Cases of disease notified per 1,000	...	...	23.5	...
population	...	...	6.4	...
				11

The report is printed.

Physical features of the District. Subsoil chiefly sand and gravel. Very flat, the highest point being only 50 feet above O.D.

Occupation of Inhabitants. Chiefly workpeople employed in London. The most important local industry is the Gasworks at Beckton.

House Accommodation. Notwithstanding the rapid increase in population the house accommodation is adequate, reasonable in rent, and, on the whole, satisfactory in character. The Council owns 220 double tenements. Plans for 831 new houses were passed during the year.

Water Supply. This is derived from the Metropolitan Water Board's works, and is abundant and constant, and the quality very satisfactory.

Milk Supply. There are six cowsheds and 157 registered dairies in the district, all of which are regularly inspected. Proper receptacles for milk storage are insisted upon. Most of the milk used in the borough comes from a distance.

Food Inspection. Each Inspector acts for the district under his charge. A quantity of unsound food was seized during the year. One tuberculous animal was killed, by consent, and the carcase destroyed. There are 15 slaughterhouses. A public abattoir would be practically useless, as animals would be killed in adjoining districts. The County Council Inspector took 128 samples in the borough during the year, and of these 12 (milk and butter) were adulterated.

Sewerage and Drainage. The sewers are on the separate system and practically all houses are connected. In no less than 1,605 cases drains were found choked. 803 drains were tested by water, smoke, or chemicals, and 245 defects found.

Pollution of Streams. The district is bounded on one side by the River Roding and the sewage effluent is discharged into it at Barking Creek.

Excrement Disposal. The sewage is precipitated by means of lime and alumina, and the clear liquid passed through bacteria beds. About 1,300 tons of sludge per week is produced. Steam, generated by the refuse destructor, is utilized for pumping purposes.

Removal and Disposal of House Refuse. A contractor undertakes to collect from every house in the borough at least once a week. The work is done most satisfactorily. The refuse is carted to the destructor works and there burnt. During the year over 20,000 tons were consumed.

Nuisances. The Inspector (Mr. Banks) gives a very full report of the work in his department. About 5,000 houses were inspected and nearly 7,000 nuisances discovered. Mr. Banks says: "We find that at 77 homes out of every 100 visited nuisances were detected." This seems a very large proportion, but the worst areas were selected for the inspection.

Byelaws. Lists of Special Acts, Adopted Acts, and of Byelaws and Regulations in force are given.

Schools, Sanitary Condition of. This matter is fully dealt with in the portion of the Report to the Education Committee. Some of the conditions admit of improvement. All the schools have trough closets and these Dr. Sowden thinks are objectionable both from the educational and hygienic aspects. Separate closets with independent flushing arrangements are the only kind which he regards as really satisfactory. Unfortunately the expense prevents their adoption.

Methods of dealing with Infectious Disease. Fully dealt with. The isolation hospital has been improved and enlarged. There is a bacteriological laboratory for diagnostic purposes. Care is taken to prevent infection spreading through Laundries, Libraries, Pawnbrokers, Day and Sunday Schools.

Control of Tuberculosis. Compared with other large towns the phthisis death-rate is very low, which the Medical Officer of Health thinks may be due to the open situation and good housing. Poor persons, when notified, are visited, printed instructions left at each house, pocket sputum bottles supplied (if patient really too poor to purchase one). Sputum is examined free of charge at the laboratory. After death or removal disinfection of rooms follows. Where wards are available at the isolation hospital, selected cases are taken in for treatment. No cases were so treated during the year, but with the increased accommodation at the hospital, and in absence of any serious outbreak of scarlet fever and diphtheria, it is hoped that 20 beds may be available during the coming year.

Factories and Workshops. There are 260 workshops on the register, and many out-workers reside in the district. All appear to have been inspected.

The report, which is very complete, refers to many other matters. Besides the improvements at the hospital, it is interesting to note that "premises and appliances have been adopted for cleansing verminous persons."

EPPING.

Medical Officer of Health	...	TREVOR FOWLER, L.R.C.P. & S.I., D.P.H.	
Area in acres	...	...	1,956
Population, 1901 census	...	...	3,789
„ 1909 estimated	...	...	4,440
Deaths registered in the district	...	...	83
Corrections	...	Additions	0
„	...	Deductions	38
Nett deaths	...	...	45

			1909.	Mean for previous 10 years.
Nett Death-rate	...	...	10.1	12.7
Zymotic Death-rate	...	...	1.1	.9
Infantile Mortality	...	...	90	134.4
Birth-rate	...	...	22.5	23.4
Cases of disease notified per 1,000 population	...	...	3.6	4.5

The report is printed.

Physical features of the District. The centre of the town is 360 feet above sea level, and the London clay is covered with boulder clay, loam, or gravel.

Occupation of Inhabitants. It is a residential district. The only local industry is an iron foundry, which affords employment to about 100 people.

Housing Accommodation. Many of the houses are modern and of good description, but there is a large number of old cottages entirely unsuited for human habitation. There is great difficulty experienced in obtaining decent cottages, and probably the Sanitary Authority will have to provide cottages. Some of the inhabitants appear to be of the undesirable class who, when they move into new and better class houses, proceed to render them unfit to live in.

Water Supply. This is from the Herts and Essex Co.'s mains, and although hard it is pure and wholesome.

Milk Supply. Chiefly local. Farms are inspected.

Food Inspection. The Sanitary Inspector visits slaughterhouses at times of slaughtering. The slaughterhouses are apparently not of modern construction. An arrangement for veterinary inspection of animals is suggested.

Sewerage and Drainage. The town is sewered and the sewage taken to four different outfalls. Drains are laid under the supervision of the Inspector. The adoption of some of the sections of the Public Health (Amendment) Act, 1907, is advocated.

Pollution of Streams. The sewage effluents have given rise to no complaints, or to any stream pollution.

Excrement Disposal. Nearly all the houses have water closets. There are no cesspits left. The sewage is dealt with either by precipitation, bacteria beds, or broad irrigation, or by the three systems combined.

Removal and Disposal of House Refuse. The refuse is removed fortnightly in covered carts. A weekly removal is advocated.

Nuisances.

Byelaws.

Schools, Sanitary Condition of. The two schools are connected to the sewers and have the public water supply laid on.

Methods of dealing with Infectious Disease. Suitable cases are removed to the Epping Rural Hospital. Bedding, clothing, etc., are removed for steam disinfection.

Control of Tuberculosis. The district enjoys almost complete freedom from this disease. No hospital accommodation is provided nor does it appear that such is desired.

Factories and Workshops. Twenty-seven on the register. Only one defect found during inspection. There are no outworkers in the district.

FRINTON-ON-SEA.

Medical Officer of Health ... H. W. GODFREY, M.D.

Area in acres	...	...	..	403
Population, 1901 census		...	...	644
„ 1909 estimated		...	...	1,800
Deaths registered in the district...			...	9
Corrections	...	Additions	...	—
„	...	Deductions	...	—
Nett deaths	...	...	...	9
				Mean for previous, 6 years.
Nett Death-rate	...	...	1909, 4·4	... 7
Zymotic Death-rate	...	...	—	... ·4
Infantile Mortality	...	...	103·4	... 124·1
Birth-rate	...	...	16·11	... 18
Cases of disease notified per 1,000 population	...	...	1·1	... 1·5

The report is printed and brief.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation.

Water Supply. The Tendring Hundred Water Co. supplies a good potable water. The supply was temporarily restricted during the season. The covering and cleansing of cisterns is advocated.

Milk Supply. The milk supplied has been found by chemical and bacteriological examination to be pure and wholesome. Model regulations are desirable for the supervision of dairies.

Food Inspection.

Sewerage and Drainage. Satisfactory.

Pollution of Streams. (No stream to pollute.)

Excrement Disposal. (All houses have water closets and sewage is discharged into the sea.)

Removal and Disposal of House Refuse. Carried out satisfactorily but a few complaints were received during the season.

Nuisances. Byelaws. Schools, Sanitary Condition of. Method of dealing with cases of Infectious Disease. Control of Tuberculosis. Factories and Workshops.

GRAYS.

Medical Officer of Health ... JOHN A. WARD, M.D.

Area in acres	...	...	...	1,359
Population, 1901 census	...	...	...	13,834
„ 1909 estimated	...	...	...	15,750
Deaths registered in the district	...	...	...	164
Corrections	...	Additions	...	18
„	...	Deductions	...	0
Nett deaths	...	...	..	182
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	11.4
Zymotic Death-rate	...	...	..6	1.8
Infantile Mortality	...	...	87	105
Birth-rate	...	...	26	30.2
Cases of disease notified per 1,000	...	...	5.8	12.7
population	...	...	...	...

The report is printed.

Physical features of the District. On the bank of the Thames. The soil is gravel, and alluvium overlying chalk.

Occupation of Inhabitants. The inhabitants are mainly of the working classes employed at Tilbury Docks and the cement works. There has been no increase the last two years.

House Accommodation. There were 170 unoccupied houses at the end of the year.

Water Supply. From the South Essex Water Co. The company now softens the water and the hardness has been reduced to about 10 degrees. The average for previous 8 years has been 20 degrees. The chlorides now remain low, removing any suspicion of influx of tidal water.

Milk Supply. There is one cowkeeper and thirty-one milkshops. Special attention is paid to the cleanliness of vessels and provision of proper coverings.

Food Inspection. The five slaughterhouses were repeatedly visited. Meat is systematically inspected but no seizures have been made.

Sewerage and Drainage. With six exceptions, all the houses have water closets. Thirty-seven are not connected to the sewers.

Pollution of Streams and Excrement Disposal. The question of enlarging and improving the sewage works in order to produce an effluent meeting the requirements of the Port of London Authority is receiving attention. Other riverside parishes may join in the scheme.

Removal and Disposal of Refuse. Collected weekly by the Council's carts, and burnt in a destructor. 3,000 tons were consumed, sufficient to provide 20 per cent. of the heat needed for generating electricity at the public electric station.

Nuisances. House-to-house inspections are made. 485 nuisances were remedied.

Byelaws.

Schools, Sanitary Condition of. The sanitary conveniences are frequently inspected.

Methods of Dealing with Infectious Disease. The same preventive measures were taken as in former years. There is an isolation hospital used jointly with the Orsett Rural District, with steam disinfectors. No attempt is made to remove all cases of scarlet fever.

Control of Tuberculosis. Voluntary notification is adopted, and 12 cases were notified in other than "poor persons." Printed instructions and disinfectants are provided, and spitting flasks lent. Bacteriological examination of sputum is made at the expense of the Council. A suggestion that the small-pox hospital be used for phthisis patients was not favourably entertained by the Hospital Board.

Factories and Workshops. There are 50 workshops and only four home workers. Frequent inspections are made. Thirteen nuisances were remedied.

HALSTEAD.

Medical Officer of Health ... C. GORDON ROBERTS, M.B.

Area in acres	...	...	...	647
Population, 1901 census	...	...	...	6,073
„ 1909 estimated	...	...	...	6,100
Deaths registered in the district	...	...	...	102
Corrections	...	Additions	...	1
„	...	Deductions	...	17
Nett Deaths	...	...	...	86
				Mean for previous 10 years.
Nett Death-rate	...	1909.	...	15.4
	...	14.1	...	
Zymotic Death-rate	...	0	...	1.1
Infantile Mortality	...	104.3	...	120.8
Birth-rate	...	18.8	...	21.3
Cases of disease notified per 1,000 population	...	9	...	8.8

The report is printed.

Physical features of the District. The town is on opposite sides of the Colne Valley, and the soil varies greatly, being clay, sand, gravel, or marl.

Occupation of Inhabitants. Messrs. Courtauld's silk factory employs over 1,200 hands, and Messrs. Portway's foundry over 250. Some of the work people reside in the villages around. Much female labour is employed.

House Accommodation. Sufficient untenanted cottages always available. Speaking generally, the houses are in good order, and an improvement is visible.

Water Supply. From two deep wells in the chalk (owned by the Council). There are two water towers and the service reservoirs hold 84,000 and 42,000 gallons respectively. The supply is about 20 gallons per head per day, and the Medical Officer of Health thinks some of this is wasted. The water is hard, but very pure.

Milk Supply. New regulations for dairies and milkshops have been adopted and the improvement since has been marked.

Food Inspection. Bakehouses and slaughterhouses are frequently inspected. Some improvements have been effected, No unsound food has been detected.

Sewerage and Drainage. Fully reported upon. There have been many improvements during recent years, but the sewer ventilation is still imperfect. The slight fall available causes the main sewer to silt up from time to time, and cleansing is a costly undertaking.

Pollution of Streams.

Excrement Disposal. Practically every house has a water closet connected with the sewer. The sewage works are being reconstructed. Two of Dibdin's slate beds and three filter beds of screened gravel have been reconstructed. These will relieve the farm by dealing with about one-third of the daily flow of sewage.

Removal and Disposal of House Refuse. Scavenging is done by the Council's employees and it is seldom that complaints are received. Apparently there are two dust carts, one provided with a cover, the other not.

Nuisances. 335 cottages were inspected and 141 nuisances discovered. Nearly all appear to have been abated.

Byelaws. List of byelaws and of Acts adopted is given.

Schools, Sanitary Condition of.

Methods of dealing with Infectious Disease. There is a small isolation hospital with disinfecting apparatus. Only 5 cases of disease were notified during the year and four were removed to the hospital.

Control of Tuberculosis. The provision of tent hospitals on elevated ground for early cases is advocated. Cases chiefly occur amongst mill hands and earlier diagnosis is very desirable.

Factories and Workshops. 53 on register. All inspected. A few minor defects were found and remedied.

HARWICH.

Medical Officer of Health ... H. GURNEY, L.R.C.P., M.R.C.S.

Area in acres	...	...	...	1,541
Population, 1901 census	...	...	...	10,079
„ 1909 estimated	...	...	...	11,355
Deaths registered in the district			...	125
Corrections	...	Additions	...	14
„	...	Deductions	...	—
Nett deaths	...	...	...	139
				Mean for previous
				10 years.
Nett death-rate	...	..	1909. 12·2	... 12
Zymotic Death-rate	...	..	·3	... ·97
Infantile Mortality	...	...	104·4	... 108
Birth-rate	...	...	32	... 30
Cases of disease notified per 1,000				
population	...	...	2·6	... 3·9

A brief type-written report.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation.

Water Supply. (From the Tendring Hundred Water Co.) Of a high standard of excellence.

Milk Supply. Cowsheds and dairies are inspected.

Food Inspection. "My experience of foreign meat inspection at Parkeston Quay brings home to my mind how necessary such an inspection is, and makes one think that if the same amount of disease exists in home-fed cattle, that a similar supervision should be carried out at home." "These remarks apply equally to examination of dairy cows."

Sewerage and Drainage. The drains both in Harwich and Dovecourt are not efficiently ventilated. Seventeen cases of diphtheria are attributed to this defect. The Upper Dovecourt drainage scheme is still in abeyance; dead wells and ditches receive the sewage.

Pollution of Streams. Excrement Disposal. Heavy storms would possibly prove disastrous in the low-lying parts of Harwich, as the engines at the pumping station are found to be defective. (Apparently the sewage is pumped into the sea.)

Removal and Disposal of House Refuse.

Nuisances. Many drainage defects have apparently been detected. A house occupied by five families was ordered to be closed until the defects discovered were remedied.

Byelaws.

Schools, Sanitary Condition of.

Methods of dealing with Infectious Disease.

Control of Tuberculosis.

Factories and Workshops. H. M. Inspector directed attention to a workshop where there was no sanitary convenience. A remedy was provided.

ILFORD.

Medical Officer of Health ... C. F. STOVIN, M.A., L.S.A., D.P.H.

Area in acres	...	...	...	8,496
Population, 1901 census	...	...	...	41,234
„ 1909 estimated	...	...	...	74,362
Deaths registered in the district	...	...	...	886
Corrections	...	Additions	...	105
„	...	Deductions	...	334
Nett deaths	...	...	...	657

			1909.	Mean for previous 10 years.
Nett Death-rate	...	...	8·8	10
Zymotic Death-rate	...	...	·6	1·4
Infantile Mortality	...	...	68	108·1
Birth-rate	...	...	22·1	28
Cases of disease notified per 1,000 population	...	...	6·3	8·6

The report is printed.

Physical features of the District. District undulating. Subsoil gravel and brick-earth, resting on London clay. It is a very large district, a good deal of which is still rural in character.

Occupation of Inhabitants. Population chiefly of lower middle class, occupying houses of from £20 to £40 a year.

House Accommodation. There are 16,226 houses in the district, of which 1,050 are uninhabited.

Water Supply. One part is supplied by the South Essex Water Co., and another by the Metropolitan Water Board. Some shallow wells still exist in the rural area, but these are gradually being closed and the water mains extended. The water from both public sources is good and no complaints have been received.

Milk Supply. There are 55 dairies and milkshops and 10 cowsheds in the district. The examination of a sample of milk in the County Public Health Laboratory led to the discovery of a diseased cow, which was "soon after disposed of." The necessity of more stringent regulations as to the conditions under which milk should be produced is dwelt upon.

Food Inspection. Of the three slaughterhouses in the district, one is unsuitable for the purpose and a report has been submitted to a committee on the provision of a public abattoir. A certain amount of unsound meat was seized and condemned. Fish and fruit shops are also inspected, and both fish and fruit has been condemned as unfit for human consumption.

Sewerage and Drainage. There has been no extension of sewers during the year.

Pollution of Streams. One sample of effluent taken by the Thames Conservancy was the subject of complaint. Measures have since been taken to improve the effluent.

Excrement Disposal. The sewage is treated bacteriologically, and two new filter beds have been brought into use. By covering the tanks and carriers nuisances from effluvia have been diminished. Fewer complaints are now received from Barking.

Removal and Disposal of House Refuse. Collection once a week by Council's men, under the supervision of the chief sanitary inspector. It is tipped at Aldborough and the pit is rapidly being filled up. The Local Government Board refused an application for a loan for a dust destructor at the dépôt. Other sites are under consideration and the matter is becoming urgent.

Nuisances. Dealt with fully in the Inspector's report.

Byelaws. Only referred to incidentally.

Schools, Sanitary Condition of. Fully dealt with. The voluntary schools apparently, cannot compare with the Council schools.

Method of dealing with Infectious Disease. Dealt with under heads of each separate disease. Large isolation hospital, with proper equipment.

Control of Tuberculosis. As the result of voluntary notification, 25 cases were notified, and 29 were notified under the tuberculosis regulations. The Medical Officer of Health suggests utilizing six beds at the infectious disease hospital for suitable cases, chiefly for educational purposes. Free bacteriological examination of sputum is arranged for. Disinfection is offered in cases of death or removal.

Factories and Workshops. There are 495 workshops in the district. These are all inspected, but few defects are discovered. The number of outworkers is not large. Practically all are engaged in the making of wearing apparel. The houses are visited.

LEIGH-ON-SEA.

Medical Officer of Health ... W. DOUGLAS WATSON, M.R.C.S., L.R.C.P.

Area in acres	...	...	...	2,332
Population, 1901 census	...	...	...	3,667
„ 1909 estimated	...	...	...	6,858
Deaths registered in the district	...	...	...	67
Corrections	...	Additions	...	5
„	...	Deductions	...	—
Nett deaths	...	...	...	72
				Mean for previous 10 years.
Nett Death-rate	...	...	1909. 10·5	... 11·4
Zymotic Death-rate	...	...	·1	... 1·8
Infantile Mortality	...	...	44·8	... 93·7
Birth-rate	...	...	22·7	... 24·2
Cases of disease notified per 1,000 population	...	...	6·6	... 9·4

The report is printed.

Physical features of the District. On the north bank of the Thames estuary, adjoining Southend. Soil loamy, clay with patches of gravel.

Occupation of Inhabitants. Three classes of people: (1) fishermen engaged in cockling, shrimping, and whitebaiting, (2) workmen employed in the building trade and (3) business and professional men engaged in London.

House Accommodation. More than 100 new houses have been erected during the year.

Water Supply. The Southend Water Co. has maintained a constant supply of excellent water.

Milk Supply.

Food Inspection.

Sewerage and Drainage. Premises in the old town became flooded with sewage and legal proceedings resulted. The Judge held that there was some negligence on the part of the Council's servants, but that the drain which caused the trouble was not a sewer vested in the Council. Improvement schemes are being prepared.

Pollution of Streams. Effluent from sewage works passes into Thames estuary. The ditches and watercourses have been cleansed.

Excrement Disposal. Some cesspools apparently still exist in outlying parts, but most houses have water closets connected with the sewer. The improvements effected at the sewage works in 1907 and 1908 have resulted in an improved effluent being produced.

Removal and Disposal of House Refuse.

Nuisances. A special inspection of back roads and passages and of conveniences attached to licenced premises was made during the year.

Byelaws.

Schools, Sanitary Condition of. Herschell's School was found to have damp walls due to the earth abutting on the sides. This has been cleared away. The playground at the Infants' School is a sea of mud in wet weather.

Methods of dealing with Infectious Disease. The want of an isolation hospital has been felt during the year. Pauper cases are sent to the Rochford hospital by arrangement, but delay arises on account of the relieving officer residing in Southend. Plans for a permanent hospital are being prepared. Improved methods of disinfection have been introduced, but there is no steam disinfecter.

Control of Phthisis. Six poor-law cases of phthisis were notified, and 11 other cases were voluntarily notified. Cards of "Instructions" are supplied and disinfection is carried out after death or removal. If the early cases could be sent to a sanatorium it would be a benefit to the patients and to the community.

Factories and Workshops. There are 17 workshops and 12 workplaces in the district. These have been inspected.

LEYTON.

Medical Officer of Health ... J. F. TAYLOR, M.R.C.S., D.P.H.

Area in acres	...	...	...	2,594
Population, 1901 census		...	...	98,912
,, 1909 estimated	...	...	...	121,200
Deaths registered in the district			...	2,352
Corrections	...	Additions	...	16
,,	...	Deductions	...	1,144
Nett deaths	...	...	...	1,224
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909. 9·9	... 11·9
Zymotic Death-rate	...	...	·97	... 2·
Infantile Mortality	...	...	81·9	... 114·8
Birth-rate	...	...	24·6	... 29·5
Cases of disease notified per 1,000				
population	...	...	6·7	... 8·3

The report is printed.

Physical features of the District. Very flat, on the river gravel in the Lee Valley. Near the Lee the soil is alluvium.

Occupation of the Inhabitants. There are no special industries. The inhabitants are chiefly city clerks, male and female, who are said to have no particular interest in the place in which they sleep, and who readily migrate from one district to another.

House Accommodation. There are no back-to-back houses, or crowded courts, and practically no slums, but certain areas have acquired an unenviable reputation on account of the lazy, dirty and dissolute people who have congregated there. Many houses formerly occupied by one family are now occupied by two. During the year the number of houses in the district has increased by 242, but the number of inhabited houses has diminished by 87. Apparently, therefore, the housing accommodation is adequate.

Water Supply.

Milk Supply. The great bulk of the milk used is imported. There are only seven cowkeepers in the district. Two samples of milk were examined on account of cows appearing tuberculous, but the results were negative. Dairies, etc., are inspected. Grooming and cleaning of cows is not satisfactory.

Food Inspection. The Food and Drugs Act is administered by the County Council. There are 17 slaughterhouses in the district, and these are inspected at least once a week. Two Inspectors have special qualifications for meat inspection, and every effort is made to prevent unsound food being sold. Several successful prosecutions have been undertaken against butchers for having on their premises carcasses of pigs affected with tuberculosis. One hard case is reported, where a butcher purchased a pig which had received a prize and silver cup at the Islington Cattle Show. When slaughtered it was found to be tuberculous, and had to be destroyed. The butcher had to bear the whole loss, £12. Refreshment houses are periodically inspected.

Sewerage and Drainage. The drains of 181 houses have been reconstructed, and 26 ventilating shafts have been erected on the public sewers. A large trunk sewer, 5 ft. in diameter, has been laid from Sidmouth Road to the sewage works.

Pollution of Streams.

Excrement Disposal. Water closets are exclusively used and the sewage is treated by chemical precipitation at the sewage works. Negotiations are still in progress with the London County Council for taking the sewage of Leyton and four other towns in the Lee Valley into the metropolitan sewers.

Removal and Disposal of House Refuse. Removal, twice a week, is carried out by contract at a cost of £3,000. The refuse is destroyed by a destructor, which is used also for cremating the pressed sewage sludge.

Nuisances. 4,375 houses were inspected and 2,339 visits paid to premises in connection with food supply. 4,516 notices to abate nuisances were served, but the number complied with is not stated.

Byelaws.

Schools, Sanitary Condition of. Taken as a whole, the schools are said to be in a satisfactory state.

Methods of dealing with Infectious Disease. Invaded houses are visited and special care is taken to prevent the spread of infection by laundries and by milk cans belonging to milk vendors. Bedding, etc., is removed for steam disinfection. 406 cases were taken to the temporary hospital.

Control of Tuberculosis. When poor law cases are notified cards of instruction are left with the patient or friends, and the assistant Medical Officer of Health visits about once a month. The Council supplies disinfectants, spit bottles, etc., and disinfects after death or removal. Certain cases go to the West Ham Infirmary, and if they improve may return home.

Factories and Workshops. There are 240 workshops on the register. 676 inspections were made of outworkers' premises. 445 notices were served to remedy unwholesome conditions.

The volume contains a report by the chief Sanitary Inspector, and the report of the School Medical Officer.

LOUGHTON.

Medical Officer of Health ... A. BUTLER-HARRIS, M.A., M.B.

Area in acres	...	...	...	3,961
Population, 1901 census	..	...	...	4,730
„ 1909 estimated	...	...	...	6,000
Deaths registered in the district			...	48
Corrections	...	Additions	...	8
„	...	Deductions	...	1
Nett deaths	...	...	...	55
				Mean for previous
				9 years.
Nett Death-rate	...	...	1909. 9·2	... 8·7
Zymotic Death-rate	...	...	·3	... ·7
Infantile Mortality	...	...	69·5	... 78·6
Birth-rate	...	...	19·1	... 19·3
Cases of diseases notified per 1,000				
population	...	...	11·1	... 4·5

The report is printed.

Physical features of the District. A hilly neighbourhood, with clay subsoil save on the hill tops, which are capped with gravel. A portion of Epping Forest is in the district.

Occupation of Inhabitants. The well-to-do-inhabitants are chiefly occupied in business in London, a small section are engaged in local trade, but the bulk of the working classes are occupied in farming, building, etc. There is no large factory and no particular occupation detrimental to health.

House Accommodation. On the whole satisfactory. Cottages sufficiently commodious and the majority have gardens.

Water Supply. From the Metropolitan Water Board and is free from organic or bacterial contamination.

Milk Supply. Almost exclusively from dairies within the district. The quality is good. The cowsheds are well kept, dairies clean, etc. There is no reason to suspect tuberculous contamination of the milk, but the periodical testing of cows with tuberculin is advocated.

Food Inspection. No food has been condemned or seized.

Sewerage and Drainage. Satisfactory with one exception. The exception apparently refers to a building situated a distance from the main sewer, within the forest. Development on building estates immediately north-west of the railway station will render the duplication of the main sewer a necessity in the immediate future. Many water closets are without flushing apparatus.

Pollution of Streams. Since the extension of the bacterial system at the sewage farm no further pollution of the Roding has occurred.

Excrement Disposal. The whole of the sewage is treated at the farm. The dry weather flow is treated on sprinkler beds and the effluent passed through sand filters before entering the river. Storm water is dealt with on the land.

Removal and Disposal of House Refuse. Scavenging has been done more efficiently, but apparently is not quite satisfactory, as a weekly collection is advocated.

Nuisances. Very few nuisances appear to be detected. The Inspector only received 17 complaints and only detected (without complaint) 11 nuisances. All were abated.

Byelaws. Byelaws relating to new buildings, nuisances, slaughterhouses, dairies and cowsheds are in force.

Schools, Sanitary Condition of. (Good. The accommodation and ventilation of the girls' school are inadequate. A new school is shortly to be built.)

Methods of dealing with Infectious Disease. At present cases are sent to the isolation hospital at Epping, but this arrangement terminates shortly. A report on this subject has been presented. Infected premises are disinfected.

Control of Tuberculosis. A system of voluntary notification was adopted three years ago, but is a dead letter. No case under the poor law was notified. The district is singularly free from tuberculosis.

Factories and Workshops. (There are two small factories in satisfactory order.)

MALDON.

Medical Officer of Health ... H. REYNOLDS BROWN, M.D., C.M.

Area in acres	...	...	...	3,028
Population, 1901 census	...	...	...	5,565
„ 1909 estimated	...	...	...	5,720
Deaths registered in the district	...	...	...	117
Corrections	...	Additions	...	3
„	...	Deductions	...	37
Nett deaths	...	...	...	83

				Mean for previous 10 years.
				1909.
Nett Death-rate	...	...	14·5	14·7
Zymotic Death-rate	...	...	1·9	1·15
Infantile Mortality	...	...	70	97
Birth-rate	...	...	22·6	23·8
Cases of disease notified per 1,000 population	...	...	4·8	7·9

The report is printed.

Physical features of the District. The town is situated on the crest and slope of a ridge overlooking the Blackwater estuary near its highest navigable point.

Occupation of Inhabitants. There are iron works, timber yards, and flour mills employing labour. Fishing, ccasting, and agriculture employ many.

House Accommodation. Fair. There are some old houses in an unsatisfactory condition. Apparently the Council permit temporary wooden sheds to be used, as the Medical Officer of Health hopes they will cease to allow them to be erected.

Water Supply. The waterworks are in the hands of the Corporation. The supply is from two deep wells, and averages 14 gallons per head per day. The supply is intermittent.

Milk Supply. Model Regulations are in force.

Food Inspection. There are four slaughterhouses. These are inspected from time to time.

Sewerage and Drainage. Most of the town is sewered, but Fullbridge and the Causeway are too low to connect with the existing system.

Pollution of Streams. The sewage is discharged on the ebb tide into the tidal estuary about a mile below the town.

Excrement Disposal. Chiefly into sewers, but privies abound at Fullbridge and the Causeway. Pail closets are recommended and are emptied weekly by the Council's scavengers.

Removal and Disposal of House Refuse. Sanitary dustbins are being largely adopted and are emptied weekly by the public scavengers.

Nuisances. Sixty-nine nuisances were discovered and all abated.

Byelaws.

Schools, Sanitary Condition of. The privy accommodation at one school is unsatisfactory and causes a nuisance.

Method of dealing with Infectious Disease. There is a hospital belonging to the Maldon Urban and Rural Districts, and provision at Little Totham for any small-pox cases which may occur. Room disinfection by formalin spray. Bedding, etc., submitted to steam disinfection.

Control of Tuberculosis. No notification save of poor law cases. There is a special ward at the Union Infirmary, but no patient has been found willing to enter it. Advice is given to notified cases and disinfectants provided. After death or removal the premises are disinfected.

Factories and Workshops. These are said to be few in number, and that their sanitary condition is, as a rule, excellent.

ROMFORD.

Medical Officer of Health	...	A. WRIGHT, M.R.C.S.	
Area in acres	...	...	5,630
Population, 1901 census	...	..	13,656
„ 1909 estimated	...	...	16,600
Deaths registered in the district	...	...	291
Corrections	...	Additions	6
„	...	Deductions	111
Nett deaths	..	...	186
			Mean for previous
		1909.	10 years.
Nett Death-rate	...	10·3	11·8
Zymotic Death-rate	...	·5	1·27
Infantile Mortality	...	83	111·8
Birth-rate	...	25·1	28
Cases of disease notified per 1,000			
population	...	9·4	7·4

The report is printed.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation.

Water Supply. A constant supply from the South Essex Water Co. No complaint has been made of its quality. The mains have recently been extended along several roads. A few shallow wells are still used.

Milk Supply. Dairies, etc., are inspected.

Food Inspection. An Inspector attends the markets and examines all provisions. He also attends the cattle markets. In cases where diseased, poor or emaciated animals are exposed for sale, he obtains the name and address of the purchaser, and the destination of the beast, and acquaints the authorities of the districts into which the beasts are sent.

Sewerage and Drainage. There has been no extension of sewers during the year.

Pollution of Streams. The River Rom, north of the town, has been cleansed partly by private enterprise and partly by the Council.

Excrement Disposal.

Removal and Disposal of House Refuse. Removed fortnightly by the Council's men. Some is carted to a brickfield and some to a gravel pit.

Nuisances. Nearly all, if not all, the nuisances discovered are described. Periodical inspections are made. 331 nuisances were abated. In 9 cases summonses had to be issued.

Byelaws.

Schools, Sanitary Condition of.

Method of dealing with Infectious Disease. Each case notified is visited by the Sanitary Inspector or Medical Officer of Health and an investigation made to discover its origin. Sanitary defects found are remedied. Disinfection of room, bedding, etc., is done by the Inspector.

Control of Tuberculosis Disinfection after death or removal is practised.

Factories and Workshops. 338 inspections were made of factories, workshops, and workplaces, and 8 defects found and remedied.

Much trouble is experienced in this district in dealing with tent and van dwellers. They encamp on unenclosed land. The opinion is expressed that further legislation is necessary to enable sanitary authorities to deal with them more effectually.

The Medical Officer, after referring to the utility of the isolation hospital, discusses the cause of "return" cases of scarlet fever. He thinks no amount of care can prevent such cases occasionally occurring.

SAFFRON WALDEN.

Medical Officer of Health	...	W. ARMISTEAD, M.B.	
Area in acres	...	...	7,502
Population, 1901 census	...	...	5,896
„ 1909 estimated	...	...	6,500
Deaths registered in the district	...	...	103
Corrections	...	Additions	0
„	...	Deductions	34
Nett deaths	...	...	69
			Mean for previous
		1909.	10 years.
Nett Death-rate	...	10·6	13·4
Zymotic Death-rate	...	·1	·56
Infantile Mortality	...	59	115
Birth-rate	...	15·6	18·6
Cases of disease notified per 1,000 population	...	1·0	5·5

The report is printed.

Physical features of the District. The town is on the upper chalk and has an elevation varying from 150 to 250 feet, rising at Seward's End to 400 feet. It is in the Cam valley

Occupation of Inhabitants. Various. Some are chiefly dependent upon agriculture. A few are engaged in brick and cement works.

House Accommodation. Apparently quite satisfactory.

Water Supply. From a deep well in the chalk. The water is softened before distribution. The supply is owned by the Corporation. The hamlet of Little Walden is supplied from a well used by E. B. Gibson, Esq. The average daily supply is about 19 gallons per head. Since the water was softened the death-rate has fallen about 2 per 1,000 population.

Milk Supply. No milk is imported. There are 9 dairies and 14 cowsheds in the district and these are well supervised.

Food Inspection. No special arrangements made. No unsound food has been discovered. The five slaughterhouses are regularly inspected.

Sewerage and Drainage. Plans have been prepared for sewerage of the Borough and provision of disposal works. Estimated cost, £23,000.

Pollution of Streams. The effluent from the existing works enters the Cam. When the new works are completed the effluent should be so satisfactory as to cause no pollution.

Excrement Disposal. Most of the houses drain into the existing sewers. Such as do not will be connected with the new sewers.

Removal and Disposal of House Refuse. Removed weekly by public scavengers. The "D" card system used.

Nuisances. The Surveyor is also Inspector. Forty-one nuisances were discovered during the year and all abated.

Byelaws. Byelaws relating to Nuisances, Dairies and Cowsheds, Markets, Slaughterhouses, Cleansing Footways, New Streets and Buildings, and the Alteration of Buildings are in force, and various permissive Acts have been adopted.

Schools, Sanitary Condition of. The seven public elementary schools are in a satisfactory sanitary condition and are provided with water from the mains.

Methods of dealing with Infectious Disease. Dealt with systematically and efficiently. The isolation hospital is used by the Urban and Rural Districts. Houses are disinfected (but there is no steam disinfecter for bedding, clothing, etc.).

Control of Tuberculosis. No poor law cases notified. Arrangements made for disinfecting rooms, etc.

Factories and Workshops. Workshops, etc., inspected. Twelve notices for abatement of nuisances were served, and all the defective conditions were remedied.

SHOEBURYNESSE.

Medical Officer of Health ... M. H. RAPER, M.D., D.P.H.

Area in acres	...	...	...	1,036
Population, 1901 census	...	...	...	4,081
„ 1909 estimated	...	...	...	4,866
Deaths registered in the district				56
Corrections	...	Additions	...	2
„	...	Deductions	...	0
Nett deaths	...	...	...	58
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	11·9
Zymotic Death-rate	...	...	1·4	2·3
Infantile Mortality	...	...	125	114
Birth-rate	...	...	34·9	34·4
Cases of disease notified per 1,000				
population	...	...	4·3	6·7

A type-written report. Very brief.

Physical features of the District. On north bank of mouth of Thames. Soil clay and gravel.

Occupation of the Inhabitants. The chief industries are brickmaking, agriculture, navigation, and work at garrison and railway.

House Accommodation. (Good.)

Water Supply. From the District Council's works. The deep well has recently been improved and now yields water of good quality and sufficient to meet all requirements.

Milk Supply. Cowsheds and dairies clean and satisfactory.

Food Inspection. (Meat, etc., inspected periodically.)

Sewerage and Drainage. The sewers supply all but about 30 outlying dwellings.

Pollution of Streams.

Excrement Disposal. The sewage is run into two tanks. These are emptied and flushed out twice in the 24 hours and the sewage carried out half-a-mile to sea. This system has hitherto given satisfactory results.

Removal and Disposal of House Refuse. Refuse is removed twice weekly in a satisfactory manner.

Nuisances. Dirty houses and improper keeping of animals referred to.

Byelaws.

Schools, Sanitary Condition of. (Schools both comparatively new. Sanitation good.)

Methods of dealing with Infectious Disease. (Removed to fever hospital.)

Control of Tuberculosis. (Notification of death or removal. Disinfection of house.)

Factories and Workshops. (Inspected twice in the year.)

SOUTHEND-ON-SEA.

Medical Officer of Health ... C. GRANT PUGH, M.D., B.SC., D.P.H.

Area in acres	...	...	...	5,172
Population, 1901 census	...	...	...	28,857
„ 1909 estimated	...	...	...	61,268
Deaths registered in the district	...	...	...	616
Corrections	...	Additions	...	38
„	...	Deductions	...	23
Nett deaths	...	...	...	631
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	12.4
Zymotic Death-rate	...	...	10.3	1.5
Infantile Mortality	...	...	5	135.1
Birth-rate	...	...	74.6	22.9
Cases of disease notified per 1,000	...	...	18.6	
population	...	...	4.5	7

Printed. A very full and complete report.

Physical features of the District. On the north bank of the Thames estuary. The old town is at about sea level, but on the west the ground is 80 to 100 feet above O.D. and parts are 125 feet above O.D. The soil is river gravel.

Occupation of Inhabitants. Whole character of town altered since 1901. A large proportion of population engaged in hotels, boarding houses, lodgings, etc. Many families reside here for the benefit of their health, many elderly people who have retired, and many who have business in London.

House Accommodation. Building keeps pace with the increase of population. There are 474 unoccupied houses. In 1906 there were 922. Flats are increasing in number. Three-fifths of the borough has not yet been built upon.

Water Supply. The supply is in the hands of the Southend Water Co. The water is of a high degree of purity, and free from any suspicion of contamination. The wells are carefully constructed and protected. The supply has been constant. The Secretary affords the Medical Officer of Health any information required.

Milk Supply. The great bulk of the milk used is imported. There are only seven registered cowsheds in the district, and in all the sanitary regulations are fairly well observed. One cowkeeper has his animals tested with tuberculin. The cows are not examined by an official veterinary inspector. There are 40 dairies on the register and these are frequently visited, as also are the 126 milk shops. The proper covering of all milk vessels is rigidly insisted upon. The Medical Officer of Health disapproves of the general dealer also supplying milk.

Food Inspection. There is a specially qualified meat inspector, who visits slaughterhouses, whenever possible when slaughtering is in progress, and the butchers' shops. In seven instances meat was voluntarily surrendered for destruction. A man who had slaughtered and exposed for sale a tuberculous pig was convicted. Great care is taken that shell fish is free from contamination and that cockles are efficiently cooked before being exposed for sale. The street vendors of vegetables, ice creams, etc., are kept under observation. The Medical Officer of Health thinks that the Sale of Food and Drugs Act would be better administered by the Borough Council. "Not only is the total number of samples taken in the borough unduly low, but the number of milk samples examined cannot be considered sufficient."

Sewerage and Drainage. The Fairfax Drive sewer is being rapidly proceeded with. Apparently when completed all the populous portions of the borough will be sewered. The condition of the house drains and their connection with the sewers are carefully supervised. The new scheme, sanctioned by Parliament, includes the laying of new main sewers, pumping station, etc., and when completed they will suffice for a population of 150,000.

Pollution of Streams. The sewage, at present, goes direct into the Thames, during the first four hours of ebb tide by means of an outfall 1,800 yards from high water mark. This will be abandoned when the works referred to in the next section are completed.

Excrement Disposal. Sewage works are now being constructed to purify the sewage of 100,000 persons, and the effluent, which must conform to a standard approved by Parliament, will be discharged into the Thames estuary $1\frac{1}{2}$ miles below high water mark and 150 yards below low water mark.

Removal and Disposal of House Refuse. The Town Council undertakes the collection, once weekly, and from large premises two or three times weekly. Some of the refuse is disposed of to brick makers, the remainder is tipped where land is available. Difficulty is experienced in obtaining suitable sites and a destructor is to be erected near the new sewage works, half-a-mile from any populous portion of the borough. The estimated cost is £11,000.

Nuisances. Three Inspectors are employed and the details given of their work shew that great attention is devoted to the detection and abatement of all nuisances. Nearly 1,000 nuisances were detected and abated during the year.

Byelaws. These are referred to under various headings. The Medical Officer of Health refers to several series which either require adopting or bringing up-to-date. *Vide* section on "Improvements required."

Schools, Sanitary Condition of. The Medical Officer of Health is also School Medical Officer, and this subject is dealt with in his school report. In this report he refers to many matters which require attention, but on the whole the report is satisfactory.

Method of dealing with Infectious Disease. Each disease is dealt with separately and it is impossible to do justice to the report in a brief abstract. Where cases are notified the fullest investigation is made to discover the cause and to detect any unnotified cases. A bacteriological laboratory is provided and utilized to the utmost for diagnostic purposes. Diphtheria antitoxin is used both for curative and preventive purposes, and supplied free of charge by the Borough Council where the Medical Officer of Health thinks such a course desirable. The part played by shell fish in the spread of typhoid fever in past years is fully dealt with and it is shewn that in proportion to the care taken to prevent polluted shell fish being used typhoid fever has decreased. The Medical Officer of Health, however, does not argue that shell fish alone caused fever in the past, but whatever the causes, the improved sanitary administration has practically eradicated the disease, for the typhoid incidence is now below the average for other English towns.

Control of Tuberculosis. Voluntary notification, with the usual fee, was adopted in 1905 and must be regarded as a failure as no case was notified during the year. Yet the medical men courteously afford the Medical Officer of Health information from which he gathers that there are 90 patients under treatment, 72 of whom had contracted the disease before they came to reside in the borough. Early bacteriological diagnosis is made at the laboratory and the local practitioners avail themselves largely of the facilities afforded. The Medical Officer of Health recommends the adoption of byelaws against "spitting." The Guardians have recently adopted a resolution that in future no patients suffering from phthisis shall be admitted to the Infirmary, but be treated at home if possible, and if this is impossible, sent to sanatoria. The Medical Officer of Health criticises adversely this innovation and points out not only its impracticability but also its inadvisability from a public health point of view, and suggests that all early poor law cases should be sent to sanatoria, and that late cases should continue to be admitted to the Infirmary under improved conditions so that they may be encouraged to remain there until released by death. Lodging-house keepers occasionally have objected to their rooms being disinfected after occupation by a consumptive person.

Factories and Workshops. There are 184 registered workshops and workplaces, and 35 outworkers. The inspection of all these is efficient.

WALTHAM HOLY CROSS.

Medical Officer of Health ... J. DAMER PRIEST, D.P.H., M.R.C.S.

Area in acres	...	...	...	11,070
Population, 1901 census	...	...	...	6,547
„ 1909 estimated	...	...	...	6,975
Deaths registered in the district	...	...	...	76
Corrections	...	Additions	...	7
„	...	Deductions	...	3
Nett deaths	...	...	...	80
				Mean for previous 10 years.
Nett Death-rate	...	...	1909. 11·6	11·9
Zymotic Death-rate	..	...	·8	1·1
Infantile Mortality	...	...	63·1	116·3
Birth-rate	...	...	20·2	25·9
Cases of disease notified per 1,000 population	...	...	4·8	4·9

The report is printed.

Physical features of the District. (Valley, on London clay, water-logged.)

Occupation of Inhabitants. (Manufacture of explosives and in glass house trade.)

House Accommodation. There are 1,539 inhabited houses, 40 uninhabited, and 6 in process of building.

Water Supply. A constant adequate supply of excellent water has been maintained by the Metropolitan Water Board. Periodic examinations, both chemical and bacteriological, have given most satisfactory results.

Milk Supply. Cowsheds and premises for storage and sale of milk are systematically inspected. Several minor and two gross defects have received attention. Large dairy farms are inspected monthly by the Medical Officer of Health and Veterinary Surgeon. The cattle are tested for tuberculosis. The sanitary condition of dairy premises is quite satisfactory.

Food Inspection. The five slaughterhouses are inspected by a qualified Inspector. Some dead meat is brought in from outside the district. Diseased meat has been seized and destroyed.

Sewerage and Drainage. The sewage is treated by the York Continuous Filter. The effluent, which is stable and almost unvarying, has been repeatedly tested by the Lee Conservancy, without comment. A satisfactory system of sewage disposal for the hamlets of Upshire, High Beech, and Sewardstone is a complex question which has not yet been solved. The large capital expenditure necessary, in view of the future requirements of the district, adds to the difficulty.

Removal and Disposal of House Refuse. The weekly removal of house refuse is satisfactorily performed by the Council's employees. The screened refuse is used as fuel at the works. Stewardstonebury is dealt with by contract.

Byelaws are in operation in respect to the erection of working class dwellings.

Schools, Sanitary Condition of. A whole time School Medical Officer is appointed and the scheme is working smoothly and satisfactory.

Method of dealing with Infectious Disease. Cases are received into the Waltham Joint Hospital, where 40 beds are available. Infected articles of clothing, &c., are removed there for disinfection in the steam disinfector, separate conveyances being used for infected and disinfected articles. Those who are able pay, a fee of 7s. 6d. for this, to others it is free.

Control of Tuberculosis. Notification is voluntary by medical practitioners, but compulsory by District Medical Officers. Facilities for the detection of tubercle bacilli are offered to practitioners. Literature is distributed to those in charge of consumptives. Disinfectants are freely used. In case of removal or death of patient, rooms are disinfected, re-papered and limewashed. Milk supplies are supervised as already noted.

Factories and Workshops. There are 37 registered workshops (including 8 bake-houses and 2 laundries) and 2 factories. A table of the inspections and defects found is attached.

WALTHAMSTOW.

Medical Officer of Health ... J. J. CLARKE, L.R.C.P., D.P.H.

Area in acres	...	...	...	4,343
Population, 1901 census	...	...	...	95,131
„ 1909 estimated	...	...	...	136,602
Deaths registered in the district	...	...	...	982
Corrections	...	Additions	...	234
„	...	Deductions	...	11
Nett deaths	...	...	...	1,205
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	...
Zymotic Death-rate	...	...	8·8	...
Infantile Mortality	...	...	·8	...
Birth-rate	...	...	83·3	...
Cases of disease notified per 1,000	...	...	24·6	...
population	...	...	5·9	...
				9·7

The report is printed.

Physical features of the District. This large district is in the Lee Valley. The surface is undulating and the soil chiefly gravel, but the clay outcrops in Hoe Street and the Northern Wards.

Occupation of the Inhabitants. The district is one of the City's dormitories, with a large child and "working-age" population. There is only a small amount of local labour. Hoc Street Ward is of a residential character. The St. James Street and Wood Street areas are chiefly occupied by artisans and labourers. No ward, however, is without a fair proportion of good class houses, ranging in rateable value from £20 to £50.

House Accommodation. Since 1906 building operations have been, practically, at a standstill. As there are 1,735 empty houses, apparently the present accommodation is ample. Although the Medical Officer of Health uses 136,602 as the population basis for his statistics, in his report, page 13, he says that unless the character of the district has much changed "the total population for 1909 did not exceed 129,000."

Water Supply. The whole district is supplied by the Metropolitan Water Board. The supply is constant and no complaint has been received, but no analyses have been made.

Milk Supply. Some new regulations of an advanced character have been adopted, but have not yet come into operation. They will materially help in maintaining a higher standard of cleanliness in dairies and cowsheds. There are 13 cowsheds now in occupation, and many have recently been improved. All cowsheds, dairies and milkshops are periodically visited. A veterinary surgeon has been appointed and has submitted a report on all cows and cowsheds inspected by him. In one herd of 73 cows, 15 were considered to be suffering from tuberculosis of the udder! The cows were dirty, badly kept, etc. The cowkeeper parted with the peccant cows before any action could be taken. A cow with probable tubercular udder was found in each of two other byres, but with these exceptions all the cows were said to be sound and well kept. More frequent visits will be made in future.

Food Inspection. Fifteen slaughterhouses and 91 butcher's shops are kept under constant supervision. By persistent visiting of slaughterhouses at the hours of killing inspection of the entire animal is possible. Two whole carcasses were seized and destroyed, besides numerous organs and pieces of meat. Apparently all were surrendered voluntarily. 133 samples of food were submitted to the County Analyst and nine were found "contrary to law." Seven successful prosecutions followed. Fishmongers and ice cream vendors received special attention. A certain amount of fish was destroyed.

Sewerage and Drainage. The whole district has a duplicate system of sewers and practically every house has water closet accommodation. 656 drains have been tested and 247 reconstructed.

Pollution of Streams. *Vide* next section.

Excrement Disposal. The sewage farm is 182 acres in extent. The sewage is treated with lime and alum and the clarified effluent passed over the land. It has not at all times satisfied the Leo Conservators, and in September the Council was prosecuted and heavily fined. Negotiations are in progress with the London County Council for the reception of sewage from this and other districts into the metropolitan main sewers.

Removal and Disposal of House Refuse. The dust is collected bi-weekly by the Council's men and burnt in a destructor. Greater efforts are being made to enforce

the County Council byelaws against the sweeping from shops and houses into the roadway, but there is room for stricter supervision.

Nuisances. Some thousands of "intimation" notices were sent to owners and in only 73 cases was it necessary to send statutory notices. All these were then attended to.

Byelaws. New byelaws as to new streets and buildings have been adopted, and these, as far as relate to drainage, apply to existing buildings, and are found of considerable service. The new regulations relating to dairies and cowsheds have already been referred to.

Schools, Sanitary Condition of. Each school has been visited twice and the sanitary condition well maintained. All have been brought up-to-date.

Methods of dealing with Infectious Disease. There is an excellent isolation hospital. The difficulty experienced in the diagnosis in the early stages is dwelt upon. Bacteriological aid is rendered where possible. Many cases of alleged diphtheria failed to give a positive reaction. It is hoped that the more efficient supervision of schools will reduce the incidence of infectious diseases. The adoption of the Notification of Births Act is advocated. Important matters relating to "Isolation Hospitals" will be found in Section II. of the County Annual Report. Outfits for early diagnosis of diphtheria and typhoid fever are kept at the Public Health Offices and anti-diphtheritic serum for gratuitous injection is supplied to practitioners requiring it.

Control of Tuberculosis. The new Local Government Board Order relating to tuberculosis amongst poor persons has been of great service, but in some instances the notification was not received until days after the death of the patient. Visits were made to notified cases and instructions given. A leaflet on "Consumption" was prepared by the Medical Officer of Health and judiciously distributed. Disinfection is offered after death or removal, and bedding and clothing (in case of death) are removed for steam disinfection.

Factories and Workshops. These are systematically visited, as also are out-workers' premises.

NOTE.—The additional work entailed by school inspection has caused the duties of the Medical Officer of Health and Sanitary Inspector to be more differentiated and the Medical Officer of Health assumes no control over the duties apportioned to the Inspector. Certain information contained in the above synopsis has therefore been obtained from the Inspector's report, since Dr. Clarke only deals with work performed under his authority.

WALTON-ON-THE-NAZE.

Medical Officer of Health	...	J. C. BROCKWELL,	M.R.C.S., L.R.C.P.
Area in acres	...	...	2,065
Population, 1901 census	...	...	2,014
„ 1909 estimated	...	...	2,367
Deaths registered in the district	...	...	23
Corrections	...	Additions	4
„	...	Deductions	0
Nett deaths	...	...	27

			1909.		Mean for previous 10 years.
Nett Death-rate	...	...	11.4	...	12.5
Zymotic Death-rate	...	...	0	...	.7
Infantile Mortality	...	...	160	...	107
Birth-rate	...	...	21.1	...	22.2
Cases of disease notified per 1,000 population	...	...	1.6	...	2.9

Physical features of the District. Situated on the eastern boundary of the County of Essex; the district is compact and partly peninsular.

Occupation of the Inhabitants.

House Accommodation. The working class dwellings more recently constructed are of a much improved type and are largely let as lodgings to summer visitors, of which there are between 3,000 and 4,000.

Water Supply. An abundant supply of excellent quality is supplied by the Tendring Hundred Water Co. The County Medical Officer of Health has recently reported that "The water is of extreme bacteriological and chemical purity."

Milk Supply. A considerable amount of time has been devoted to the inspection of cowsheds and dairy premises, and some improvements effected. A very defective cowshed is now closed.

Food Inspection. No special arrangements are made for food inspection and there is no certificated meat inspector. The two slaughterhouses are periodically visited by the Medical Officer of Health and Sanitary Inspector.

Sewerage and Drainage. The sewage is water carried. The drains are efficiently connected and trapped, and are frequently flushed.

Excrement Disposal. The sewage is dealt with in a septic tank, the effluent from which is discharged into the sea on the ebb tide. Only on one occasion has this given cause for complaint.

Pollution of Streams.

Removal and Disposal of House Refuse. The iron dustbins, which largely predominate, are emptied daily, or as occasion demands, by contract.

Nuisances. On one occasion complaint was made of the sewage outflow and this was occasioned by the fall of the tide being insufficient to carry the sewage out to sea at that time.

Byelaws.

Schools, Sanitary Condition of. The old High School, though still in use, has been condemned, and a new one is to be erected. The Saville Street School is satisfactory. Arrangements have been made to disinfect all papers and books in the event of infectious disease breaking out in a school.

Method of dealing with Infectious Disease. Cases of infectious disease are visited by the Medical Officer of Health as soon as possible, and at least fortnightly thereafter. Disinfectants are distributed. Bedding, etc., after being fumigated with formalin, is sent away for sterilization by steam. The disinfection of infected premises is supervised by the Medical Officer of Health. There is no isolation hospital.

Control of Tuberculosis. There is no compulsory notification save of poor cases by District Medical Officers. No notifications have been received during the year. There is no institution in the district for the treatment of pulmonary phthisis.

Factories and Workshops.

WANSTEAD.

Medical Officer of Health ... F. ARGLES, M.R.C.P., M.R.C.S.

Area in acres	...	...	...	1,679
Population, 1901 census	...	...	...	9,179
„ 1909 estimated	...	...	...	13,445
Deaths registered in the district	...	...	...	89
Corrections	...	Additions	...	10
„	...	Deductions	...	1
Nett deaths	...	...	...	98
				Mean for previous
				10 years.
Nett Death-rate	..	...	1909. 7.2	... 9.2
Zymotic Death-rate	...	...	1	... 1.1
Infantile Mortality	...	...	46.9	... 89.5
Birth-rate	...	...	15.6	... 19.9
Cases of disease notified per 1,000				
population	...	...	2.6	... 8.2

The report is printed.

Physical features of the District. Undulating save on the Flats. Well wooded.

Occupation of Inhabitants. Chiefly residential. There are several institutions in the district, of which the more important are the Royal Seamen's Orphanage and the Infant Orphan Asylum.

House Accommodation. The population is increasing and 159 new houses have been passed for occupation during the year. On the Wanstead Park, Lake House, and East Lodge Estates 178 buildings have been sanctioned.

Water Supply. Constant and satisfactory. From the Lea Bridge pumping station of the Metropolitan Water Board.

Milk Supply. Milk chiefly comes from a distance and is of good quality. The 5 cowsheds, 3 dairies, and 8 milk shops are inspected monthly.

Food Inspection.

Sewerage and Drainage. Pollution of Streams. Excrement Disposal. In February, 1909, six new contact beds were completed at the sewage works. An experienced manager has been appointed to supervise the farm and works.

Removal and Disposal of House Refuse. The removal is done weekly by a contractor and is believed to be efficiently carried out.

Nuisances. Dark Alley has been closed, and the nuisance in Slater's Alley abated.

Byelaws.

Schools, Sanitary Condition of. The drainage, water supply, and sanitary conveniences are satisfactory.

Method of dealing with Infectious Disease. A hospital with 20 beds is provided. An arrangement has been made with West Ham for the reception of small-pox patients in the Dagenham hospital. Bacteriological diagnosis of diphtheria is provided for and the Medical Officer of Health gives an instance of its great utility.

Control of Tuberculosis. Two notifications only have been received since the Local Government Board memorandum was issued.

Factories and Workshops. These are few in number. All are periodically inspected.

WITHAM.

Medical Officer of Health ... K. GIMSON, M.B., B.CH.

Area in acres	...	..	...	3,633
Population, 1901 census	...	...	...	3,454
„ 1909 estimated	...	...	...	3,620
Deaths registered in the district			...	49
Corrections	...	Additions	...	—
„	...	Deductions	...	—
Nett deaths	...	...	...	49
				Mean for previous 10 years.
Nett Death-rate	...	...	1909. 13·5	15
Zymotic Death-rate	...	...	·8	·8
Infantile Mortality	...	...	101·7	98
Birth-rate	...	...	16·3	20
Cases of disease notified per 1,000 population	...	...	3·3	5·3

The report is brief and typed.

*Physical features of the District.**Occupation of Inhabitants.*

House Accommodation. A considerable number of cottages have recently been erected, but there are many old cottages still occupied with insufficient air space.

Water Supply. “Quite good, the new supply being satisfactory.”

Milk Supply. Cowsheds and dairies generally good.

Food Inspection.

Sewerage and Drainage. Sewers are kept well flushed, but are in cases too small. Most houses are connected to the sewers, but some are at too low a level and some beyond the sewered area.

Pollution of Streams. During the rainy weather some of the sewage must have got into the river. A fellmonger's premises drain into the river.

Excrement Disposal. The sewage is treated by broad irrigation on the farm. A few cottages only have privies or pail closets.

Removal and Disposal of House Refuse. The Sanitary Authority provides carts and men, and where there are moveable receptacles these are emptied weekly. Ash-pits are emptied as occasion requires. The refuse is deposited at the sewage farm.

Nuisances.

Byelaws.

Schools, Sanitary Condition of. This is said to be good.

Method of dealing with Infectious Disease. There is no isolation hospital and no apparatus for the disinfection of clothing.

Control of Tuberculosis.

Factories and Workshops. There are eight workshops and these have been inspected.

WIVENHOE.

Medical Officer of Health ... G. PENDER SMITH, L.S.A.

Area in acres	...	...	1,564
Population, 1901 census	...	...	2,560
„ 1909 estimated	...	...	3,000
Deaths registered in the district	...	...	20
Corrections	...	Additions	5
„	...	Deductions	0
Nett deaths	...	...	25

			1909.	Mean for previous 10 years.
Nett Death-rate	...	...	8·3	11·7
Zymotic Death-rate	...	...	0	1·1
Infantile Mortality	...	...	73·1	113
Birth-rate	...	...	13·6	21·0
Cases of disease notified per 1,000 population	...	...	1·3	5·9

A brief printed report.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation.

Water Supply. Excellent, plentiful, and constant. From the deep well owned by the Council through the public mains.

Milk Supply. The two dairies and two milkshops are subject to frequent and rigid inspection and are in every way satisfactory.

Food Inspection. The one slaughterhouse is kept in a very clean condition. Meat supply good. None found unfit for food. Places where food is sold or stored, satisfactory.

Sewerage and Drainage. A number of houses are connected with drains discharging into the river. There are many dead wells, which are emptied by the Council's scavengers. These cesspools from time to time give rise to complaints. Many traps and drains have been recently improved.

Pollution of Streams. Vide above.

Excrement Disposal.

Removal and Disposal of House Refuse. House refuse and pail closet contents are removed by the scavengers.

Nuisances. Few complaints (2) appear to be received and only 13 nuisances were detected during the year, and 12 were abated.

Byelaws.

Schools, Sanitary Condition of. The sanitary arrangements are both adequate and satisfactory.

Method of dealing with Infectious Disease. Cases are sent to the nearest isolation hospital, when necessary, there being no accommodation in the district. Rooms which have been occupied by patients are thoroughly disinfected.

Control of Tuberculosis. Consumption is compulsorily notifiable. Cases are dealt with at home and carefully watched.

Factories and Workshops. The two workshops are satisfactory. Home work making of wearing apparel, has greatly diminished, very few people now being so employed.

WOODFORD.

Medical Officer of Health ... W. G. GROVES, M.R.C.S.

Area in acres	...	...	..	2,161
Population, 1901 census	...	...	...	13,798
„ 1909 estimated	...	...	...	19,990
Deaths registered in the district	...	...	...	159
Corrections	...	Additions	...	11
„	...	Deductions	...	6
Nett deaths	...	...	...	164
				Mean for previous 10 years.
Nett Death-rate	...	...	1909.	8.2 ... 10.3
Zymotic Death-rate	...	...	...	.3 ... 1.2
Infantile Mortality	...	...	59.4	... 113
Birth-rate	...	...	21.1	... 24.3
Cases of disease notified per 1,000 population	...	...	3	... 5.9

The report is printed.

Physical features of the District. The greater part of the district lies high, but a portion is in the Roding valley. The soil is chiefly clay, but there are veins of gravel.

Occupation of Inhabitants. The higher part of the district is residential in character. The lower part is occupied by people of a much lower class, migratory in character. Most of the residents are employed or engaged in London.

House Accommodation. This is fairly good, but some old houses are unsatisfactory. Many large houses have old brick drains of great diameter, and some often give trouble.

Water Supply. This is good and constant, but some house cisterns are in objectionable positions. Water for drinking purposes can, however, be derived from the mains direct.

Milk Supply. More than half comes from outside. The Inspector takes samples for analysis, and on no occasion has the sample been found to be below the standard. The local sources are under strict supervision. The Council is recommended to appoint a Veterinary Surgeon to examine the cows for tuberculosis.

Food Inspection. No tuberculous meat has been found. Some unsound fish was condemned.

Sewerage and Drainage. The town is sewered. *Vide* "House Accommodation."

Pollution of Streams. The effluents produced at the sewage works are of good quality.

Excrement Disposal. There are two sewage works, one in the Lea Valley and the other in the Roding Valley. Throughout the year these have been very satisfactory.

Removal and Disposal of House Refuse. Dust is collected once a week by a contractor and on the whole is satisfactory. Complaints are made from time to time, but the fault does not, by any means, always lie with the contractor or his men.

Nuisances. 301 nuisances were abated, but only 212 are said to have been discovered. The ponds, so often complained of, gave no trouble last summer. Most nuisances found were due to blocked drains.

Byelaws.

Schools, Sanitary Condition of. All the schools in the district have been inspected.

Methods of dealing with Infectious Disease. Woodford is now in the Waltham Joint Hospital district. The arrangement has proved most satisfactory. There has been no return case. All cases are promptly removed. Facilities are afforded medical practitioners for the free bacteriological diagnosis of diphtheria and phthisis. Thorough examination of infected houses is made, and careful disinfection follows removal or recovery of the patient. There is a steam disinfecter.

Control of Tuberculosis. The Medical Officer of Health does not think the compulsory notification of phthisis is justifiable, unless the cases could be removed, if necessary. *Vide* "Milk Supply."

Factories and Workshops. These are inspected. An instance is recorded shewing the necessity for visiting outworkers' premises.

III. RURAL DISTRICTS.

BELCHAMP.

Medical Officer of Health ... J. SINCLAIR HOLDEN, M.D.

Area in acres	...	...	...	26,500
Population, 1901 census	...	...	...	4,847
„ 1909 estimated	...	...	...	4,847
Deaths registered in the district	...	...	...	53
Corrections	...	Additions	...	10
„	...	Deductions	...	—
Nett deaths	...	...	...	63
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	13
Zymotic Death-rate	...	...	0	...
Infantile Mortality	...	...	33	...
Birth-rate	...	...	18.8	...
Cases of disease notified per 1,000	...	...	...	...
population	...	...	3.5	...
				4.1

The report is printed.

Physical features of the District. There are 17 parishes in the district.

Occupation of Inhabitants.

House Accommodation. Generally good, though in most parishes there are some old cottages requiring frequent repairs. As a rule all have sufficient open space. One case of overcrowding was abated.

Water Supply. Shallow wells, apparently. Five new private wells have been sunk.

Milk Supply. The three registered cowsheds are regularly inspected. Most of district is supplied by farmers who keep two or three cows, and allowed the surplus milk to be procured by their neighbours.

Food Inspection.

Sewerage and Drainage. Sewers and drains are only used for slop water. Eighteen drains were improved during the year.

Pollution of Streams. The effluent from Foxearth Brewery is discharged into a ditch or stream. The effluent is chemically treated and the process gives satisfactory results, but the ditch requires cleansing twice a year to remove vegetation, etc.

Excrement Disposal. “Privy cesspools and pail system is only means of dealing with excremental matter, which is disposed of on garden or allotment ground.”

Removal and Disposal of House Refuse.

Nuisances. Eighty-eight nuisances appear to have been detected and 87 abated.

Byelaws.

Schools, Sanitary Condition of. The offices and conveniences in the 14 elementary schools has been satisfactorily maintained. There is no water supply to 9 of the schools. Water is brought in pails and dipping cups used !

Methods of dealing with Infectious Disease. There is no isolation hospital. Cases are isolated in their homes. Disinfection after recovery. In one case bedding was destroyed. Antitoxin was supplied to two cases of diphtheria. Schools receive special attention.

Control of Tuberculosis.

Factories and Workshops. Forty-one visits were paid to 33 factories and workshops on the register.

BILLERICAY.

Medical Officer of Health ... J. DOUGLAS WELLS, M.B., CH.B.

Area in acres	...	...	...	49,391
Population, 1901 census	...	...	...	15,192
„ 1909 estimated	...	...	...	15,192
Deaths registered in the district	...	...	...	420
Corrections	...	Additions	...	0
„	...	Deductions	...	5
Nett deaths	...	...	...	415
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	11·5 ... 13·7
Zymotic Death-rates	...	...	·66	.. ·94
Infantile Mortality	...	...	47·1	... 84·4
Birth-rate	...	...	25·7	... 25·9
Cases of disease notified per 1,000				
population	...	...	9·2	... 6·6

The report is printed.

Physical features of the District.

Occupation of the Inhabitants. The County Asylum and the Warley Barracks are in this district, but are not included in the population estimates or in the statistics. The population is taken as at the 1901 census. It has probably considerably increased. The district is essentially agricultural. The dairy industry is progressive.

House Accommodation. The want of cottage accommodation is as great as ever and has been considered by the Rural District Council from time to time. There is hardly a parish in the district in which cheap cottages are not wanted. Overcrowding cannot be abated on account of the lack of suitable dwellings.

Water Supply. The Southend Water Co. has completed the laying of their mains in (certain portions of) the district, and many houses are now connected.

Milk Supply. More light and ventilation is advocated in cowsheds to check the spread of tuberculosis. Improved "Regulations" are suggested, and the employment of a Veterinary Surgeon is urged. The cowsheds generally have been kept in good order. Two cases of anthrax in pasture-fed cows are recorded.

Food Inspection.

Sewerage and Drainage. Billericay remains unsewered. A scheme for re-sewering part of South Weald and Shenfield, conjointly with Brentwood, is in hand and will afford a means of draining some of the lower part of South Weald, which lies too low for the present system. Parts of the district are liable to floods when the sewers and cesspools get surcharged, which "must tell against the general good health of the district."

Pollution of Streams. The sewage of Billericay heavily pollutes one of the sources of the River Crouch for a long distance. The Medical Officer of Health thinks the County Council should periodically clean out the brooks and watercourses.

Excrement Disposal.

Removal and Disposal of House Refuse.

Nuisances.

Byelaws.

Schools, Sanitary Condition of. One school has had its drainage system modernised.

Methods of dealing with Infectious Disease. There is an isolation hospital, used by Brentwood also. At one period there were 15 cases from the Billericay district in the Romford Isolation Hospital. The question of providing increased accommodation has been considered and it has been decided to enlarge the hospital. Antitoxin for the use of diphtheria patients is not, apparently, provided.

Control of Tuberculosis. The Billericay Board of Guardians have decided to erect shelters for patients of the poor classes.

Factories and Workshops.

The Sanitary Inspector's report chronicles an extension of a sewer in Mountnessing, improvements at the South Weald sewage works, and weekly collection of house refuse over an increased area in South Weald and Shenfield parishes.

BRAINTREE.

Medical Officer of Health ... H. G. K. YOUNG, B.A., M.R.C.S., L.R.C.P.

Area in acres	...	...	62,291
Population, 1901 census	...	...	18,106
„ 1909 estimated	...	...	18,106
Deaths registered in the district	...	...	264
Corrections	...	Additions	4
„	...	Deductions	18
Nett deaths	...	...	250

		1909.	Mean for previous 10 years.
Nett Death-rate	...	13.8	14.2
Zymotic Death-rate	..	.05	.6
Infantile Mortality	...	62.6	83.7
Birth-rate	...	19.9	19.9
Cases of disease notified per 1,000 population	...	1.8	4.3

The report is printed.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation. Several cottages have been condemned as unfit for habitation.

Water Supply. The boring sunk at High Garrett to supply Bocking yielded an inadequate supply. At present there is no definite scheme for boring elsewhere. The bore at Coggeshall to supply Great and Little Coggeshall and Kelvedon proved successful, and the works are rapidly proceeding. Hatfield Peverel requires a pure water supply, as the existing wells are nearly all polluted. A public well at Black Notley has been deepened and improved.

Milk Supply. (Cowsheds and dairies regularly inspected.)

Food Inspection.

Sewerage and Drainage. The sewerage of Hatfield Peverel requires attention; the Brewery ditch is an intermittent source of nuisance.

Pollution of Streams.

Excrement Disposal. (No public scavenging.)

Removal and Disposal of House Refuse.

Nuisances.

Byelaws.

Schools, Sanitary Condition of.

Methods of dealing with Infectious Disease. (This district forms part of the area served by the Braintree Joint Hospital.)

Control of Tuberculosis. (Notification of all deaths and disinfection.)

Factories and Workshops. There are 24 outworkers and their premises appear to have received 132 visits.

BUMPSTEAD.

Medical Officer of Health ... W. ARMISTEAD, M.B.

Area in acres	...	...	11,874
Population, 1901 census	...	...	2,541
„ 1909 estimated	...	...	2,265
Deaths registered in the district	...	...	44
Corrections	...	Additions	2
„	...	Deductions	0
Nett deaths	...	...	46

		1909.	Mean for previous 10 years.
Nett Death-rate	...	20·3	15·5
Zymotic Death-rate	...	·9	·8
Infantile Mortality	...	182	88
Birth-rate	...	24·3	24·4
Cases of disease notified per 1,000 population	...	1·3	4·9

The report is printed.

Physical features of the District. Lies in the Stour and Colne Valleys. It is on the upper chalk, covered on the higher ground by boulder clay.

Occupation of the Inhabitants. Chiefly engaged in agriculture. A few make clothing for a factory outside the district. The population shews no signs of increasing.

House Accommodation. Most of the houses have sufficient air space. The average number of persons per house is only 3·9. Only two persons live in tenements of one room, and only 3 per cent. of the population in two-roomed houses.

Water Supply. Each parish is dealt with and interesting details given. A pond at Bailey Hill supplies that part of Birdbrook. At Helions Bumpstead two public pumps are supplied by filtered pond water. The pumps and filters have been put in good order. At Sturmer a bored well 125 feet deep overflows. On account of the elevation of the district and the thickness of the boulder clay, some difficulty is experienced in obtaining good water. The water when obtained is sometimes excessively hard.

Milk Supply. There are 30 dairies and 31 cowsheds. All are inspected. One cowshed has been reconstructed. Six of the cowkeepers send milk to London. There is no veterinary inspection.

Food Inspection. There are two slaughterhouses only. These are inspected but there are no byelaws in force. No unsound food has been detected.

Sewerage and Drainage. Birdbrook, Steeple Bumpstead, and Sturmer, are the only villages in which sewers exist. A septic tank at Sturmer has been improved.

Pollution of Streams. No complaints during the year, in consequence of improvements effected at Haverhill (Suffolk) and at Sturmer.

Excrement Disposal. Most of the cottages have gardens on which the excrement and contents of cesspools can be disposed of without nuisance. Pail closets are in common use. Many privies have been improved or converted into pail closets during the year.

Removal and Disposal of House Refuse. There is no public scavenging. The refuse is disposed of on gardens and allotments.

Nuisances. Forty-four nuisances were detected and all were abated.

Byelaws. Rural Building Byelaws and Dairy "Regulations" are in force.

Schools, Sanitary Condition of. The six schools have all been inspected. The sanitary condition of most of them is satisfactory, but four of them have no proper water supply.

Methods of dealing with Infectious Disease. The Clare and Bumpstead Joint Hospital, built originally as a small-pox hospital. Only one disease can be treated at

a time. Printed notices and instructions for preventing the spread of infection are in use, disinfectants are supplied gratis, and final disinfection is done under the superintendence of the Inspector.

Control of Tuberculosis. No case has been notified. Arrangements have been made for the disinfection of houses or rooms which have been occupied by a consumptive.

Factories and Workshops. The workshops are inspected. A fair amount of home work is done for a clothing factory at Haverhill. There are 113 houses under supervision, in four parishes; 74 of these were visited during the year.

CHELMSFORD.

Medical Officer of Health ... J. C. THRESH, M.D., D.SC., D.P.H.

Area in acres	...	...	...	83,849
Population, 1901 census	...	...	...	23,717
„ 1909 estimated	...	...	...	22,360
Deaths registered in the district	...	...	...	226
Corrections	...	Additions	...	41
„	...	Deductions	...	2
Nett deaths	...	...	...	265
				Mean for previous 10 years.
Nett Death-rate	...	...	1909. 11·8	13·3
Zymotic Death-rate	...	...	·2	·7
Infantile Mortality	...	...	74	80
Birth-rate	...	...	21·6	22·9
Cases of disease notified per 1,000 population	...	...	2·1	6·5

The report is printed.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation. The large number of houses erected during recent years has in most parishes met all requirements, but cottages with three bedrooms are wanted in many parishes. There is a full report on the Housing of the Working Classes in Little Waltham. Many landowners do not provide sufficient cottages for the labourers on their farms. Plans were passed for 78 new houses during the year.

Water Supply. Most of the district is adequately supplied, there being six waterworks owned by the Rural District Council. The villages worst supplied are Broomfield, Stock, and West Hanningfield. A public supply is about to be provided for Broomfield from a deep well. The amount of water supplied by the waterworks during the year was 54 million gallons. About two miles of new mains have been laid. Many public wells have been improved.

Milk Supply. There are 117 dairies and cowsheds and 4 milkshops in the district. Many cowsheds are defective, some have not a satisfactory water supply.

"Regulations" of a very modern character are in force. The question of appointing a Veterinary Inspector was discussed by the Council, but the motion to appoint one was finally lost. Some tuberculous cows were found by the London County Council Veterinary Inspector, and were removed from the herds. Grooming of cows is becoming more common.

Food Supply. There are 14 slaughterhouses and 39 bakehouses in the district, all under supervision. Byelaws relating to cleanliness, etc., of slaughterhouses are in force in all the populous parishes. No unsound food has been discovered nor has any complaint been received.

Sewerage and Drainage. Four of the largest villages are properly sewered, and two others have sewers which are really road-drains prostituted into sewers. Woodham Ferris requires sewerage, but the strong objection of the Parish Council was allowed to overrule the desire of the District Council. A sewerage scheme for Broomfield is being prepared. House drains generally are satisfactory.

Pollution of Streams. The effluents from the Ingatestone sewage farm and the Writtle works enter the Wid, but do not pollute it. The sewage (or part of it) of Billericay pollutes one of the tributaries of the Wid.

Excrement Disposal. Where there is a water supply water closets are in general use, elsewhere pail closets are most common. Privies are gradually being eliminated; 31 were converted into pail closets during the year. The contents are used in gardens. Scavengers remove the contents of pail closets in Broomfield and Little Waltham.

Removal and Disposal of House Refuse. Scavengers remove the house refuse at Widford and Great Baddow. The Borough of Chelmsford continues to tip its refuse in this district.

Nuisances. The method of dealing with these is recorded. All are submitted to the Sanitary Committee. 298 were reported during the year, and 278 abated.

Byelaws. A complete list of these appeared in a recent report.

Schools, Sanitary Condition of. All schools are inspected. Sanitary improvements were effected at two. The water supply generally is satisfactory, but in two or three instances could admit of improvement.

Methods of dealing with Infectious Disease. There is an isolation hospital provided by the Joint Hospital Board. Bacteriological diagnosis are made for practitioners free of charge, if the patient is poor. There is a steam disinfecter at the hospital and when a house is being disinfected, the bedding, clothing, etc., are removed and submitted to steaming. Great attention is paid to the discovery of mild cases of disease. School absentees are visited, etc.

Control of Tuberculosis. A history of several of the notified cases is given. Voluntary notification, without payment, has proved a failure. Cards and pamphlets relating to the prevention of consumption and the care of consumptives are distributed. Disinfection follows death or removal. The Guardians have provided three or four "shelters" at the workhouse.

Factories and Workshops. There are 198 workshops on the register, and all have been visited during the year. Only three defects were discovered. There are no home-workers.

DUNMOW.

Medical Officer of Health ... E. E. GOODBODY, M.D.

Area in acres	...	...	...	73,503
Population, 1901 census	...	...	...	15,705
„ 1909 estimated	...	...	...	15,440
Deaths registered in the district	...	...	...	222
Corrections	...	Additions	...	2
„	...	Deductions	...	4
Nett deaths	...	...	...	220
				Mean for previous
				1909. 10 years.
Nett Death-rate	...	...	14·2	... 15·2
Zymotic Death-rate	...	...	·6	... ·6
Infantile Mortality	...	...	95	... 83·2
Birth-rate	...	...	21·1	... 21·8
Cases of disease notified per 1,000				
population	..	...	2·7	.. 4·8

The report is printed.

Physical features of the District. The chalk comes to the surface near Thaxted, whilst the Reading beds underlie the Pant valley. The greater part of the district, however, is on the London clay, which is overlaid by beds of gravel or boulder clay.

Occupation of Inhabitants. Chiefly engaged in agriculture.

House Accommodation. Thaxted and Lindsell have been carefully inspected. Only a few cases of overcrowding were detected, but there is difficulty in abating since there were no unoccupied houses. As this is said to be a fair sample of the condition in the more rural parishes it appears that more cottage accommodation is required.

Water Supply. The Hatfield Broad Oak Water Co. apparently take water from Herts and Essex mains. They now supply 144 houses in Hatfield Town and Hatfield Heath. Great Dunmow and Felstead are supplied by the Mid-Essex District Water Co. Thaxted wants a water supply and could probably be served by the Mid-Essex Co. Other parishes are supplied from public and private wells.

Milk Supply. Fifty-seven cowsheds, dairies, etc., are registered. The "Regulations" are enforced. Many of the cowsheds admit of considerable improvement. Much of the local supply is in the hands of persons quite unfitted to deal with such an important and easily contaminated article of food.

Food Inspection. There are 17 slaughterhouses. A bacon factory has been established at Dunmow. There are no byelaws for the regulation of slaughterhouses.

Sewerage and Drainage. In most of the parishes the road drains appear to have been converted into sewers. The sewage of Thaxted, Dunmow and Felstead pollute the Chelmer. Three schemes for sewerage Dunmow have been prepared and are still under consideration. The Medical Officer of Health prepared a special report on this subject. (A copy does not appear to have been sent to the County Council.) A sewerage scheme for Thaxted was suggested.

Pollution of Streams. Vide above paragraph.

Excrement Disposal. There are 280 water closets in Dunmow, 120 in Thaxted, and about 70 in Felstead. With these exceptions cesspit privies and a few pail closets are used.

Removal and Disposal of House Refuse. This is not removed by the Council but is necessary in some of the more populous districts. A refuse tip is provided at Dunmow, to which occupiers may themselves remove refuse.

Nuisances. About 400 nuisances have been detected and 352 abated.

Byelaws.

Schools, Sanitary Condition of. All schools have been visited during the year. At two the sanitary conditions have been improved.

Methods of dealing with Infectious Disease. There is a modern isolation hospital. A new disinfecter is being installed. In dealing with these diseases the Medical Officer of Health endeavours to visit and if adequate home isolation is impossible he orders removal to the hospital. Schools are closed when necessary. A cottage is rented for use should small-pox be introduced.

Control of Tuberculosis.

Factories and Workshops. 147 workshops, etc., are registered. These have been inspected. Nine defects were found and all were remedied. Only one outworker lives in the district. Section 22 of the Public Health Acts (Amendment) Act has not been adopted.

EPPING.

Medical Officer of Health ... TREVOR FOWLER, L.R.C.P. & S.I., D.P.H.

Area in acres	...	...	...	36,705
Population, 1901 census	...	...	...	12,782
„ 1909 estimated	...	...	...	14,236
Deaths registered in the district	...	...	...	142
Corrections	...	Additions	...	20
„	...	Deductions	...	0
Nett deaths	...	...	...	162
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	12·3
Zymotic Death-rate	...	...	·5	·9
Infantile Mortality	...	...	55	93·3
Birth-rate	...	...	19·1	22·2
Cases of disease notified per 1,000	...	...	...	...
population	...	...	7·8	5·3

The report is printed.

Physical features of the District. The subsoil is clay, overlaid with gravel, sand, and boulder clay of varying thickness. Well wooded and picturesque.

Occupation of Inhabitants. Chiefly devoted to agriculture. Harlow is the only considerable centre of population.

House Accommodation. The accommodation for labourers is poor and inadequate and overcrowding with its associated evils remains unabated.

Water Supply. The Chigwell area is supplied by the Metropolitan Water Board. The Epping and Harlow areas are supplied by the Herts and Essex Water Co., and the mains have been extended through Sheering and parts of the parishes of Roydon and Nazeing. A large number of houses in these districts have been connected to the mains during the year.

Milk Supply. Much milk is produced and sent to London, but the poorer inhabitants of the district have often great difficulty in obtaining fresh milk. The Medical Officer of Health thinks much sickness of infants is due to the use of unsuitable foods consequent upon the difficulty in obtaining fresh milk. There are 68 registered cowkeepers. "Regulations" have been adopted and copies distributed. No veterinary surgeon has been appointed but the Medical Officer of Health is empowered to call one in should he consider it necessary to do so. Some cows were declared tuberculous by the London County Council Inspector, and were afterwards sold privately or in public market.

Food Inspection. There are eight slaughterhouses, all in fair condition. Slaughtering is sometimes taking place when the inspections are made. The 18 bakehouses are satisfactory.

Sewerage and Drainage. The sewerage of Roydon is an urgent necessity. Schemes for the better drainage of Potter Street and North Weald Gullett, and for Sheering Road, Harlow, are under preparation. Sheering also appears to require sewerage. Harlow, Chigwell, and Theydon Bois are sewered and possess sewage disposal works. Where sewers have been provided privies and cesspools have been abolished and water closets substituted.

Pollution of Streams. Where sewers are stated to be required some pollution of the Lee or its tributaries occurs and the Lee Conservancy Board have complained thereof.

Excrement Disposal. Where there are no sewage works, middens and cesspools abound. At Potter Street the contents of these are removed by request. At Burnt Mill and Netteswell Cross the pail closets are scavenged weekly.

Removal and Disposal of House Refuse. A contractor removes refuse once a week at Harlow and once a fortnight in Potter Street and Chigwell. At the latter places weekly removal is desirable.

Nuisances. Nearly 1,300 notices to abate nuisances were served. The number attended to is not stated.

Byelaws.

Schools, Sanitary Condition of. The schools have all been visited and the sanitary condition found to be satisfactory.

Methods of dealing with Infectious Disease. There is an isolation hospital, adequate for the district but not large enough for Loughton and Epping Urban District also. Notice has therefore been given to terminate the arrangement for receiving

patients from Loughton. There is a steam disinfecter used for the bedding, clothing, etc., for infected houses.

Control of Tuberculosis. Five poor law cases were notified. Printed "Instructions" are issued and after death the houses are disinfected. There is no provision for isolation of consumptives.

Factories and Workshops. There are 101 on the register. Most, if not all, appear to have been inspected, and a number of defects were found.

HALSTEAD No. 1.

Medical Officer of Health ... J. H. ASHWORTH, M.D.

Area in acres	...	...	...	18,072
Population, 1901 census	...	...	...	4,481
" 1909 estimated	...	...	...	4,736
Deaths registered in the district	...	...	...	39
Corrections	...	Additions	...	7
"	...	Deductions	...	0
Nett deaths	...	...	...	46
				Mean for previous 10 years.
Nett Death-rate	...	...	1909. 9·7	.. 12·9
Zymotic Death-rate	..	...	0	... 4
Infantile Mortality	...	...	51·2	... 96·2
Birth-rate	...	...	16·25	... 20·6
Cases of diseases notified per 1,000 population	...	...	2·7	... 6·5

The report is printed.

Physical features of the District. The district is undulating, and the subsoil chiefly clay, here and there capped with gravel.

Occupation of the Inhabitants. At Earls Colne a foundry employs about 300 men, and a silk factory about 100 women and girls.

House Accommodation. Many of the cottages are very old and consist of lath and plaster. Seven new houses have been erected in Earls Colne and only one elsewhere.

Water Supply. The district generally is fairly supplied, mostly from shallow wells. The lower part of Earls Colne and White Colne are in need of a better supply. Two public wells have been cleansed and repaired.

Milk Supply. The 28 cowsheds and dairies are periodically inspected and "Regulations" have been adopted. The majority of the sheds, etc., have been renovated and are now generally satisfactory. There is no veterinary inspection of cows.

Food Inspection. Bakehouses and slaughterhouses are inspected. No diseased meat has been discovered.

Sewerage and Drainage. Sewers appear only to be found in Earls Colne. At Colne Engaine there are sewer ditches which are cleansed when necessary. The scattered character of the population would make sewerage, except perhaps in Earls Colne, very difficult (and expensive).

Pollution of Streams. (River Colne polluted by sewage from Earls Colne.)

Excrement Disposal. The privy system is most in vogue, but pail and earth closets are being substituted wherever possible.

Removal and Disposal of House Refuse. House refuse is either buried in garden ground, burnt up, or carted away periodically.

Nuisances. Cases of overcrowding and of filthy houses are referred to as having been successfully dealt with.

Byelaws. There are no building byelaws.

Schools, Sanitary Condition of. (Generally satisfactory.)

Methods of dealing with Infectious Disease. Where isolation at home is impossible cases are removed to the cottage hospital at Hedingham, or to the Halstead Isolation Hospital. The houses and fabrics are subsequently fumigated and disinfected.

Control of Tuberculosis. After death of a consumptive the house is disinfected.

Factories and Workshops. (Inspected twice during the year.)

HALSTEAD No. 2.

Medical Officer of Health ... J. B. BROMLEY, M.R.C.S.

Area in acres	...	...	...	20,518
Population, 1901 census	...	...	...	5,695
„ 1909 estimated	...	...	...	5,695
Deaths registered in the district	...	...	...	62
Corrections	...	Additions	...	12
„	...	Deductions	...	3
Nett deaths	...	...	...	74
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	13
Zymotic Death-rate	...	...	...	0
Infantile Mortality	...	...	...	25·6
Birth-rate	...	...	...	20·5
Cases of disease notified per 1,000	...	...	...	...
population	...	...	...	·8
				4·7

The report is printed.

Physical features of the District.

Occupation of Inhabitants. (Chiefly agriculture; joinery factory at Sible Hedingham; brick-making in Castle Hedingham, Sible Hedingham, and Great Maplestead.)

House Accommodation. This is sufficient in view of the gradually decreasing population. Many old cottages have low bedrooms, containing no fire place or proper means of ventilation.

Water Supply. Chiefly from shallow wells. Three public wells and pumps have been improved.

Milk Supply. All dairies and cowsheds are inspected. No veterinary inspection of cows is made. The supply of milk is only meagre, but is wholesome, and there is no reason to suspect any tuberculous infection through this medium.

Food Inspection. The four slaughterhouses are inspected. No unsound food has been discovered. Bakehouses are inspected twice a year.

Sewerage and Drainage. There are no proper systems of sewers. Sewers exist in Castle and Sible Hedingham and Great Yeldham. Some of these have been extended or improved.

Pollution of Streams. Sewer ditches are referred to as existing at Castle Hedingham and Ridgewell.

Excrement Disposal. At Castle Hedingham and Great Yeldham some of the sewage is treated before being allowed to escape into ditches or streams. Earth closets and middens are chiefly used. The contents are emptied on gardens or allotments.

Removal and Disposal of House Refuse. No scavenging is undertaken.

Nuisances. Eighty-four nuisances found and abated.

Byelaws. There are no building byelaws.

Schools, Sanitary Condition of. Defects in closets or water supply apparently occur at several schools.

Methods of dealing with Infectious Disease. (There is an isolation hospital at Castle Hedingham.)

Control of Tuberculosis. No case has been notified. One house was disinfected after the death of a patient.

Factories and Workshops. 130 inspections have been made and any sanitary defects found have been remedied.

LEXDEN AND WINSTREE.

Medical Officer of Health	...	J. W. COOK, M.D.	
Area in acres	...	...	69,637
Population, 1901 census	...	...	18,572
„ 1909 estimated	...	...	20,032
Deaths registered in the district	...	...	246
Corrections	...	Additions	8
„	...	Deductions	3
Nett deaths	...	...	251

			1909	Mean for previous 10 years.
Nett Death-rate	...	...	12.29	13
Zymotic Death-rate	...	...	.1	.7
Infantile Mortality	...	...	45	85.4
Birth-rate	...	...	21.1	21.1
Cases of disease notified per 1,000 population	...	...	2.9	4.3

The report is printed.

Physical features of the District. There are 35 parishes in the district.

Occupation of Inhabitants. All the district is purely agricultural except East Donyland and West and East Mersea, each of which contains a considerable portion of seafaring people.

House Accommodation. The older houses require a good deal of attention. Better houses are more carefully looked after than formerly. New houses ought not to be built without a satisfactory system of drainage and a proper water supply being provided.

Water Supply. Stanway only has a supply from "mains." By arrangement the water is supplied by the Borough of Colchester. A good supply is urgently needed in many parishes and the Medical Officer of Health has submitted special reports on the supply to Salcot, Abberton, Langenhoe, Layer Marney, and Layer-de-la-Haye. These reports are under consideration. The water generally used is from shallow wells, which are often carelessly made and liable to pollution.

Milk Supply. There are 23 dairies and cowsheds in the district, visited by the Inspector and often by the Medical Officer of Health. There is no veterinary inspection and the Medical Officer of Health is not empowered to call in a veterinary surgeon. The buildings generally are satisfactory but greater cleanliness is needed. Now and again the Medical Officer of Health has a cow, suspected to be tuberculous, removed from the herd. The working class do not get the quantity of milk they ought to have.

Food Inspection. The 15 slaughterhouses are inspected. No food has been seized.

Sewerage and Drainage. There is an efficient system of sewerage and of sewage disposal at Dedham. A few other parishes have some kind of sewer discharging the contents into rivers or ditches. West Mersea, Stanway, and Rowhedge require sewerage.

Pollution of Streams. The Layer Brook is the stream most polluted. (Since the report was written steps have been taken to cut off all sources of pollution.)

Excrement Disposal. Privies and pail closets are in general use. The use of earth in conjunction with pails is strongly advocated.

Removal and Disposal of House Refuse. At West Mersea and Rowhedge house refuse, pail closet contents, etc., are removed by a contractor, but the provision of portable dustbins is not insisted upon. Dirt holes near houses have been the cause of outbreaks of diphtheria.

Nuisances. 177 nuisances were discovered or reported and 157 abated. The work of the inspector is not done apparently under the supervision of the Medical Officer of Health.

Byelaws. The only byelaws in force have reference to new buildings and tents, vans and sheds.

Schools, Sanitary Condition of. The Medical Officer of Health pays frequent visits to schools to inspect the sanitary arrangements; he regrets having no power to examine the water supplies.

Methods of dealing with Infectious Disease. Latterly dual notification has been insisted upon. Great difficulty is experienced from the want of an isolation hospital. There is a small disinfecter for emergency use. There is a small portable tent hospital which is usually of little use.

Control of Tuberculosis. There is no notification save of poor law cases. Compulsory notification is advocated. Apparently there is no special provision at the Workhouse or elsewhere in the district for consumptive patients. Patients notified are supplied with printed "instructions."

Factories and Workshops. The sanitary administration is satisfactory.

MALDON.

Medical Officer of Health ... J. C. THRESH, M.D., D.S.C., D.P.H.

Area in acres	...	...	...	82,342
Population, 1901 census	...	...	...	14,633
„ 1909 estimated	...	...	...	16,034
Deaths registered in the district	...	...	...	201
Corrections	...	Additions	...	24
„	...	Deductions	...	1
Nett deaths	...	...	...	224
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	14 ... 13.9
Zymotic Death-rate	...	...	2	... 8
Infantile Mortality	...	...	64.5	... 85
Birth-rate	...	...	22.3	... 24.6
Cases of disease notified per 1,000	...	...	2.3	... 5.5
population	...	...	...	...

The report is printed.

Physical features of the District. The whole area is on the London clay, capped on the hills with water bearing gravel. There is a considerable area of marsh land with a very scattered population. The Blackwater estuary nearly divides the district into two equal portions. This renders sanitary administration more difficult.

Occupation of Inhabitants. Chiefly in agriculture. At Tollesbury and Bradwell there are a fair number of seamen, and at Heybridge a large number of persons are employed at the ironworks and motor car works of Messrs. Bental.

House Accommodation. The population is increasing, especially in Heybridge, Tiptree, and Tollesbury, where building operations are fairly active. In many parishes, however, more houses are needed, and steps may have to be taken by the Rural District Council to provide them. This would be unnecessary if the large land owners discharged their moral obligations. The Rural District Council provided six cottages at Bradwell, but the result is not encouraging.

Water Supply. There are waterworks at Woodham Walter, Tiptree, and Southminster. The first named supplies nine parishes, the latter only the parishes named. These works are all satisfactory. At Heybridge a portion of the village is supplied by mains owned by Messrs. Bentall. The remainder of the parish is in great need of a proper supply. Tollesbury also requires a public water supply. Various schemes for supplying these parishes are referred to. A deep well has been sunk by the Council at Mundon to supply that village. The water is excellent. The supplies to Tillingham, Ulting, and Tolleshunt Major have been greatly improved. Seventy samples of water were submitted to analysis.

Milk Supply. There are 71 dairies and cowsheds in the district. Some are models of what such places should be, others leave a good deal to be desired. "Regulations" are in force but they are not up-to-date. Further legislative action is awaited. No veterinary inspection is attempted. No cows have been pronounced tubercular.

Food Inspection. Slaughterhouses and bakehouses are systematically inspected. No complaint has been received concerning unsound food. Shell fish from certain parts of the Blackwater estuary nearly every year cause one or more cases of typhoid fever.

Sewerage and Drainage. No new sewers have been laid during the year. Tolleshunt D'Arcy, Tollesbury, and Tillingham have proper sewers and sewage disposal works. The same may be said of the populous part of Latchingdon. The old sewers at Southminster discharge into ditches, and the sewers at Heybridge into a tidal creek. Nuisances arise in several parishes from the discharge of house drains into ditches.

Pollution of Streams. There is no obvious pollution of any stream, but occasionally indications of sewage are found in Heybridge creek.

Excrement Disposal. There are few water closets in the district. Pail closets are in general use, the old privies remaining being comparatively few. Tillingham, Latchingdon, and Tolleshunt D'Arcy each possess small irrigation areas which effectually purify all the sewage. At Tollesbury there is a septic tank and two coke beds. There are many cottages in the district without sufficient land for disposal of slops and house refuse.

Removal and Disposal of House Refuse. A scavenger is employed at Tollesbury and Southminster, and Tolleshunt D'Arcy is scavenged by contractors. Elsewhere the refuse is dug into gardens.

Nuisances. 208 were dealt with. The Inspector brings all before the Council and there is rarely any difficulty in getting them abated, though there is often considerable delay.

Byelaws. Byelaws relating to houses, slaughterhouses, nuisances, commons, etc., have been adopted.

Schools, Sanitary Condition of. (Special report sent to Education Committee.)

Method of dealing with Infectious Disease. County Public Health Laboratory utilized for bacteriological diagnosis. Joint Hospital of Maldon Urban and Rural Districts is at Heybridge. There is a steam disinfecter. Provision is made for isolation of small-pox cases at two centres.

Control of Tuberculosis. No tuberculous cows discovered. The Medical Officer of Health is empowered to engage the services of a veterinary inspector in certain cases. Phthisical patients notified by poor law officials are visited. Instructions are given. At the Workhouse a special ward has been prepared for consumptives, but persuasion has failed to secure removal of any patients.

Factories and Workshops. There are 39 on the register. Fourteen defects were found upon inspection and all were remedied. Outworkers have been visited and their premises inspected.

ONGAR.

Medical Officer of Health ... W. R. ROBERTS, M.B.

Area in acres	...	...	...	47,712
Population, 1901 census	...	...	...	10,044
„ 1909 estimated	...	...	...	10,500
Deaths registered in the district	...	...	...	162
Corrections	...	Additions	...	
„	...	Deductions	...	
Nett deaths	...	...	...	
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	13.3
			14.45	
Zymotic Death-rate	...	...	1.3	.8
Infantile Mortality	...	...	95	93
Birth-rate	...	...	20.7	22.9
Cases of disease notified per 1,000				
population	...	...	5.2	4.7

The report is printed,

Physical features of the District.

Occupation of Inhabitants. Chiefly engaged in agriculture. Population scattered.

House Accommodation. The best class of cottage is found in the south-west part of the district. In the northern area cottages are not so good and there seems to be a demand “not so much for an increased number of cottages, as for a better class of cottage with two living rooms and three bedrooms.”

Water Supply. The Essex and Herts Co. supply the parishes of Chipping Ongar, Bobbingworth, Stanford Rivers (part of), Greenstead, and Lambourne. The remainder of the district depends on shallow wells.

Milk Supply. There are 91 registered cowkeepers and dairymen. Cowsheds and dairies in good condition. Thirteen tuberculous cows were found by the London County Council Inspector.

Food Inspection. The slaughterhouses have been inspected.

Sewerage and Drainage. The villages of Abridge, of Chipping Ongar, and of Toot Hill are sewered. High Ongar requires sewerage. Eyfield has been specially inspected and reported upon and local improvements are being made.

Pollution of Streams.

Excrement Disposal. Pail closets are in general use where there are no sewers. Where sewers exist the sewage is submitted to land treatment before being discharged into any stream.

Removal and Disposal of House Refuse. The house refuse in Chipping Ongar is systematically collected and burnt in a kiln at the sewage works. An extension of the system to other parishes is advocated.

Nuisances. A few cases of overcrowding only are referred to. Steps are being taken to secure their abatement.

Byelaws. Byelaws relating to picking of fruit and vegetables have been adopted but found to be worse than useless.

Schools, Sanitary Condition of. On the whole these are in a satisfactory condition.

Methods of dealing with Infectious Disease. An arrangement has been entered into with West Ham for reception of small-pox cases in their hospital. The Council possesses a site for a hospital, and has tents, etc., ready for erection thereon. Bedding is "stoved" and premises sprayed with formalin. Antitoxin is used as a prophylactic against diphtheria.

Control of Tuberculosis. Cows known to be infected are isolated. Fourteen cases of phthisis were notified amongst poor persons. Instructions are given the patients and friends, and in some cases pocket spitting flasks have been provided.

Factories and Workshops. Generally in good order. Apparently only four in the district.

ORSETT.

Medical Officer of Health ... W. ALLINGHAM, M.R.C.S., L.R.C.P., L.S.A.

Area in acres	...	...	...	39,803
Population, 1901 census	...	...	...	19,912
„ 1909 estimated	...	...	...	24,317
Deaths registered in the district	...	...	...	309
Corrections	...	Additions	...	2
„	...	Deductions	...	35
Nett deaths	...	...	...	276

			909.	Mean for previous 10 years.
Nett Death-rate	...	...	10.9	14
Zymotic Death-rate	...	...	1.10	2.5
Infantile Mortality	...	...	95	128
Birth-rate	...	...	27.2	31.9
Cases of disease notified per 1,000 population	...	...	7.5	11.7

The report is printed.

Physical features of the District. The chalk crops out in this district at Purfleet and Stifford. Thanet sand occurs on the uplands, and London clay about Bulphan. Langdon Hills attain an elevation of 385 feet + O.D., but most of the area is flat and low.

Occupation of Inhabitants. The industries carried on largely are oil refineries, paper making, explosives, cement making, and wood storing.

House Accommodation. The number of persons per house is 5.06, which is much above the average for our Rural District, but overcrowding it is said, "does not prevail to any great extent."

Water Supply. The South Essex Water Co. supplies Tilbury Docks, Little and West Thurrock, Stifford, North and South Ockendon, Aveley, Stanford, Horndon, Corringham, and Orsett. Arrangements are also being made for the supply of Langdon Hill. Fobbing is supplied by the Southend Water Co. Bulphan and parts of North and South Ockendon are supplied by artesian wells.

Milk Supply. Cowsheds, dairies, etc., are frequently inspected. All, with trifling exceptions, are in good order. A good deal of milk is sent to London.

Food Inspection. Bakehouses and slaughterhouses are in good condition.

Sewerage and Drainage. Tilbury Docks and parts of Chadwell St. Mary and Little Thurrock are sewered, so also are Stanford and parts of Corringham and Orsett. Some cottages drain into ditches. Five tank vans are used for emptying cesspools in various parts of the district

Pollution of Streams. The only streams in the district are the Mardyke and Stanford Brook. The latter is tidal as far as Stanford Bridge. No pollution is recorded.

Excrement Disposal. Where there are proper sewers the sewage is treated bacteriologically. The sewage vans empty their contents upon land. The Orsett sewer discharges into a subsidence tank and the overflow runs into a ditch. The disposal of the cesspool contents is very unsatisfactory and a serious menace to public health.

Removal and Disposal of House Refuse. Public scavenging is undertaken in Chadwell St. Mary, Aveley, North and South Ockendon, West and Little Thurrock, Stifford, and Stanford.

Nuisances. 250 inspections have been made. 295 nuisances were detected and abated

Byelaws. Model building byelaws are in force.

Schools, Sanitary Condition of.

Method of dealing with Infectious Disease. There is an isolation hospital in the district used jointly by the Rural District and Grays Urban District. There is a disinfecter. There is also a small-pox hospital for the two districts. When cases are notified search is made for missed cases. Schools are closed when necessary and thoroughly cleansed and disinfected.

Control of Tuberculosis.

Factories and Workshops. Forty-two workshops are registered. Defects found were speedily remedied.

ROCHFORD.

Medical Officer of Health ... M. H. RAPER, M.D., D.P.H.

Area in acres	...	...	...	56,668
Population, 1901 census	...	...	...	14,457
„ 1909 estimated	...	...	...	16,700
Deaths registered in the district	...	...	...	249
Corrections	...	Additions	...	0
„	...	Deductions	...	44
Nett deaths	...	...	...	205
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909.	12·7
Zymotic Death-rate	...	...	·9	1·2
Infantile Mortality	...	...	66·2	99·5
Birth-rate	...	...	27·1	26·3
Cases of disease notified per 1,000	...	...	9	8·4
population	...	...	...	...

The report is type-written and very brief.

Physical features of the District. The east end is flat and low lying, forming the coast. Further inland the land becomes higher and hilly.

Occupation of the Inhabitants. The chief industries are agriculture and brick-making.

House Accommodation.

Water Supply. The greater part of the district is supplied with water from artesian wells. (There is an excellent public supply to several parishes.)

Milk Supply.

Food Inspection.

Sewerage and Drainage. (District unreserved.)

Pollution of Streams.

Exercement Disposal.

Removal and Disposal of House Refuse. } “Various methods of house refuse disposal are in operation in different parts of the district, cesspits, earth closets, and middens being the chief ones.”

Nuisances.

Byelaws.

Schools, Sanitary Condition of. (Good.)

Method of dealing with Infectious Diseases. (There is a hospital used by this district and the Shoeburyness Urban District.)

Control of Tuberculosis. (Notification of death or removal.)

Factories and Workshops.

ROMFORD.

Medical Officer of Health ... A. WRIGHT, M.R.C.S.

Area in acres	...	...	...	29,723
Population, 1901 census	...	...	...	19,018
„ 1909 estimated	...	...	...	24,054
Deaths registered in the district			...	239
Corrections	...	Additions	...	30
„	...	Deductions	...	6
Nett deaths	...	...	...	263
				Mean for previous
				10 years.
Nett Death-rate	...	...	1909. 10·9	... 12·1
Zymotic Death-rate	...	...	·7	... 2
Infantile Mortality	...	...	90·4	... 112
Birth-rate	...	...	26·6	... 29·8
Cases of disease notified per 1,000				
population	...	...	6·4	... 12·7

The report is printed.

Physical features of the District. The subsoil is chiefly clay, alluvium, and gravel.

Occupation of the Inhabitants. Chiefly occupied in agriculture, especially market gardening. There are a few factories and some riverside employment.

House Accommodation.

Water Supply. The South Essex Water Co. supplies all the populous portions of the district. The supply to Noak Hill is indifferent. Attempts to find water by boring have failed.

Milk Supply. Dairies and cowsheds are periodically visited.

Food Supplies.

Sewerage and Drainage. The sewerage of Dagenham is now completed. Systematic drain testing in Hornchurch was stopped on account of a decision of the magistrates. Such testing can only be done by consent save where a nuisance is suspected to exist, or where infectious disease has occurred. In such cases an examination of the drains has usually resulted in finding them faulty.

Pollution of Streams. The Ingrobourne Brook is polluted by the effluents from Brentwood and South Weald, but both works are being improved.

Excrement Disposal. (There are several sewage disposal works in the district.)

Removal and Disposal of House Refuse.

Nuisances. These are dealt with at unusual length. 341 nuisances were abated.

Byelaws.

Schools, Sanitary Condition of. The drains at Park Lane schools were found defective and have been reconstructed.

Method of dealing with Infectious Disease. There is an isolation hospital for the joint use of the Romford Rural and Urban Districts. There is a disinfecter. Most of the cases notified are visited by the Medical Officer of Health. Bedding, etc., is removed for steam disinfection, in most cases, and the house is disinfected by the inspector after removal or recovery of a patient.

Control of Tuberculosis. It is the practice to disinfect houses which have been occupied by consumptive patients.

Factories and Workshops. There are 52 on the register. One defect was discovered and remedied.

SAFFRON WALDEN.

Medical Officer of Health ... W. ARMISTEAD, M.B.

Area in acres	...	...	...	59,975
Population, 1901 census	...	...	...	10,764
„ 1909 estimated	...	...	...	9,409
Deaths registered in the district			...	141
Corrections	...	Additions	...	30
„	...	Deductions	...	0
Nett deaths	...	...	...	171
				Mean for previous 10 years.
Nett Death-rate	...	..	1909. 18·2	... 15·5
Zymotic Death-rate	...	...	0	... ·57
Infantile Mortality	...	...	62	... 94
Birth-rate	...	...	23·8	... 22·7
Cases of disease notified per 1,000 population	...	...	1·5	... 3·1

The report is printed.

Physical features of the District. The subsoil is chalk covered on the higher ground with boulder clay, and in the valleys with gravel. The elevation varies from 120 to over 400 feet above sea level. The valleys drain into the Cam, the Stort, and the Pant.

Occupation of Inhabitants. Chiefly engaged in agriculture.

House Accommodation. There is not much overcrowding. There are no building byelaws. Many of the older cottages are of lath and plaster with thatched roofs and with only two bedrooms. The population is, if anything, steadily decreasing.

Water Supply. There are no public services. Most of the parishes have one or more public pumps, wells, or standpipes. On the boulder clay areas water is often difficult to obtain, and pond water is sometimes used. The improvement of these and conversion into storage reservoirs for surface water is advocated.

Milk Supply. There are 13 registered cowkeepers. Most of the dairies are clean and satisfactory. Regulations under the Dairies, Cowsheds and Milkshops Order are in force.

Food Inspection. There are nine slaughterhouses. These are periodically visited. No unsound food has been found.

Sewerage and Drainage. Rickling and Quendon are sewered. Storm water drains in Newport and Great Chesterford have been converted into sewers. Elsewhere slop water is disposed of upon garden ground.

Pollution of Streams. The river Cam is polluted by slop water from Newport and Great Chesterford, and frequent complaints have been received of the foul state of the stream at Newport. Improvements have recently been made and the result so far is satisfactory.

Excrement Disposal. The privy system is in general use, the contents being disposed of on gardens and allotments. Twenty-four privies have been converted into pail closets during the year.

Removal and Disposal of House Refuse. Scavenging is now undertaken in Great Chesterford. In all other parishes it is done by the occupiers.

Nuisances. 113 were detected and 108 have been abated.

Byelaws. There are byelaws relating to tents, vans, and sheds, and regulations under the Dairies, Cowsheds and Milkshops Order. No other byelaws have been adopted.

Schools, Sanitary Condition of. Most of the 22 schools are in a fairly satisfactory sanitary condition. Four are without a water supply.

Methods of dealing with Infectious Disease. Dealt with in a regular and systematic manner. Disinfectants are supplied. There is an isolation hospital for this and the adjoining Urban District.

Control of Tuberculosis. Four poor-law cases notified. Disinfection of infected houses has been practised for several years.

Factories and Workshops. There are six factories and 120 workshops on the register. These are visited during the systematic inspections. Rarely are any defects discovered.

STANSTED.

Medical Officer of Health ... R. A. DUNN, M.D., D.HY., D.P.H.

Area in acres	...	...	...	22,954
Population, 1901 census	...	...	...	6,888
„ 1909 estimated	...	...	...	6,888
Deaths registered in the district	...	...	...	75
Corrections	...	Additions	...	15
„	...	Deductions	...	0
Nett deaths	...	...	...	90

			1909.	Mean for previous 10 years.
Nett Death-rate	...	...	13·0	13·2
Zymotic Death-rate	...	...	0	·7
Infantile Mortality	...	...	60·8	81·2
Birth-rate	...	...	21·4	23·6
Cases of disease notified per 1,000 population	...	...	·4	3·8

The report is included in the printed report for the combined districts of East Herts and Essex.

Physical features of the District.

Occupation of Inhabitants.

House Accommodation. During the year 15 houses have been placed in habitable repair. The whole question of housing will probably receive attention in the near future.

Water Supply. Stansted is supplied by a private company. All other parishes are supplied from shallow wells.

Milk Supply. Cowsheds are regularly visited.

Food Inspection. The six slaughterhouses are frequently visited when slaughtering is going on. No tuberculous meat has been discovered. Bakehouses are inspected twice a year.

Sewerage and Drainage. Stansted is the only village (apparently) which is sewered. The Liernur system of sewers here work satisfactorily.

Pollution of Streams.

Excrement Disposal. There is a bacterial installation at Stansted, which yields a good looking effluent.

Removal and Disposal of House Refuse.

Nuisances. 125 detected. All abated.

Byelaws.

Schools, Sanitary Condition of.

Method of dealing with Infectious Disease. Stansted joins with two other districts in an isolation hospital. There is also a small-pox hospital. There is a steam disinfecter used for infected bedding, etc. Arrangements are made for bacteriological diagnosis.

Factories and Workshops. There are 43 on the register. Each has been inspected twice during the year.

TENDRING.

Medical Officer of Health	...	J. W. COOK, M.D.
Area in acres	...	73,286
Population, 1901 census	...	20,507
„ 1909 estimated	...	22,263
Deaths registered in the district	...	296
Corrections	... Additions	3
„	... Deductions	28
Nett deaths	...	271

		1909.	Mean for previous 10 years.
Nett Death-rate	...	12.2	12.9
Zymotic Death-rate	...	.2	.9
Infantile Mortality	...	73.3	95.6
Birth-rate	...	20.8	24
Cases of disease notified per 1,000 population	...	5.4	3.1

The report is printed.

Physical features of the District. On London clay, on which lie patches of brick-earth, sand and gravel. Surface drainage into the Stour, Colne, and various short creeks.

Occupation of Inhabitants. Chiefly agricultural, but many seafaring men near the coast.

House Accommodation. Houses are far from abundant. The Medical Officer of Health thinks building schemes will have to be undertaken in many parishes. Many houses are very old and rotten.

Water Supply. Every parish has previously been dealt with in detail. Eleven parishes are supplied by the Tendring Hundred Water Co. Elsewhere the supply is from shallow wells. Ardleigh, Great Bentley, and St. Osyth are especially referred to as wanting water.

Milk Supply. There are some excellent modern cowsheds. The Medical Officer of Health inspects and often examines the cows, and if occasion requires he can take a veterinary surgeon.

Food Inspection. Slaughterhouses carefully looked to and kept clean.

Sewerage and Drainage. At Parkeston there is a good system of sewers, with septic tank and filter beds. At Manningtree, Mistley, and other places the sewers discharge into tidal streams, some having an "alumino ferric" installation. Improvements are needed at St. Osyth, Lawford, Manningtree, Mistley, Great Bentley, and Thorpe.

Pollution of Streams. The river Stour receives sewage in almost its entire course. *Vide* also paragraph above. It would require very large and costly schemes to obviate the pollution of rivers and streams.

Excrement Disposal. In Manningtree, Mistley, Lawford, and Parkeston the pail closets are scavenged by contractors. People seldom use dry earth, and the Council is now insisting upon its use. In the better houses there are water closets discharging into sewers or cesspools.

Removal and Disposal of House Refuse. In the parishes above-named scavenging of house refuse is done weekly or oftener. Dustholes are largely used elsewhere. Portable dustbins are recommended.

Nuisances. Apparently only 120 were reported or detected, and 81 abated.

Byelaws. None for houses let in lodgings. Byelaws for offensive trades, but there is no such trade in the district now. There are also building byelaws.

Schools, Sanitary Condition of. The sanitary arrangements are well supervised. A detailed inspection was made some time ago, and another is contemplated.

Method of dealing with Infectious Disease. Dual notification appears to be insisted upon. There is no isolation hospital. "Our small tent hospital is of little use and is not much used, for the simple reason it has to be got ready." "The want of a proper hospital is much felt."

Control of Tuberculosis. Voluntary notification of phthisis adopted some years ago, but was no advantage. Poor law cases, when notified, are visited, directions given, etc. No accommodation provided for either early or advanced cases.

Factories and Workshops. 185 on the register. There are 53 outworkers. Particular attention is paid to the latter.

TABLE A.
DEATHS IN EACH DISTRICT CLASSIFIED ACCORDING TO DISEASES.
Corresponding to Table IV. of the Local Government Board
1908.

[illegible]

* Deaths registered in the district uncorrected.

TABLE B.

DEATHS IN EACH DISTRICT CLASSIFIED ACCORDING TO AGES.
AREA. POPULATIONS, 1891, 1901 & 1909. & NO. OF BIRTHS.

NAMES OF LOCALITIES.	Area in acres, land and inland water.	Population, Census 1891.	Population, Census 1901.	Increase per cent. during decennium.	Decrease per cent. during decennium.	Population, middle of 1909. (estimated to mid-year).	Persons per acre.	No. of Births.	Birth-rate.	No. of Deaths Males.	DEATHS FROM ALL CAUSES AT ASSIGNED AGES.					Deaths under 1 year per 1,000 births.	
											Under 1.						
											1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		
URBAN.																	
BARKING	3,603	14,301	21,547	50.7	...	30,351	7.9	865	28.5	389	12.8	93	61	18	23	123	71
BARNET	2,224	5,363	5,330	5	...	5,330	2.3	130	24.3	73	13.6	34	74	14	164	322	23.0
BARNSTAPLE	460	4,949	4,932	...	...	8,005	17.5	123	15.2	73	9.6	10	7	3	6	18	29
BARNSTAPLE	2,897	3,920	4,521	14.8	...	5,012	1.7	90	18.6	51	16	4	...	...	1	11	35
BARNSTAPLE	873	4,130	4,786	15.9	...	5,300	6.0	97	16.3	45	12.26	6	2	1	3	21	32
BARNSTAPLE	4,517	2,340	2,319	23.7	...	3,328	7	55	16.5	42	12.5	6	3	4	16	16	54.0
BARNSTAPLE	2,854	11,008	12,580	14.3	...	17,500	6.1	323	18.45	141	8.05	17	5	4	6	49	60
BARNSTAPLE	2,808	2,737	4,373	59.8	...	7,717	2.7	154	22.5	64	9.5	6	3	3	4	22	26
BARNSTAPLE	4,069	3,884	7,456	105.0	...	8,078	1.9	185	23.92	101	12.50	92	64	24	106	404	256
BARNSTAPLE	11,333	34,559	38,373	11.0	...	41,835	3.6	998	23.85	405	11.8	89	36	20	26	160	89
BARNSTAPLE	3,326	32,712	96,018	193.5	...	149,575	44.9	3,318	23.5	1,412	9.4	334	175	79	53	443	323
BARNSTAPLE	1,420	3,223	3,789	17.6	...	4,440	3.1	100	22.5	45	10.1	9	3	2	1	14	16
BARNSTAPLE	403	75	644	758.7	...	1,800	4.2	29	16.11	9	4.4	3	...	1	...	4	1
BARNSTAPLE	1,359	12,397	18,334	11.6	...	15,760	11.6	411	26.0	182	11.4	36	20	4	16	53	53
BARNSTAPLE	647	6,056	6,073	3	...	6,100	9.4	115	18.85	86	14.1	12	1	...	1	23	49
BARNSTAPLE	1,541	8,202	10,070	22.8	...	11,355	7.7	364	32.05	130	12.2	38	9	4	7	50	31
BARNSTAPLE	8,496	10,913	41,234	277.8	...	79,392	9.3	1,647	22.74	637	8.8	112	66	33	23	224	194
BARNSTAPLE	1,827	2,108	3,657	74.0	...	6,858	4.4	116	22.7	72	10.5	7	2	3	3	23	34
BARNSTAPLE	2,384	63,106	98,912	56.7	...	124,728	40.5	2,979	24.6	1,203	9.96	244	163	33	76	516	176
BARNSTAPLE	3,961	3,880	4,730	21.9	...	6,000	1.5	115	19.1	35	9.2	8	3	1	...	26	17
BARNSTAPLE	3,028	5,837	5,565	3.1	...	5,729	1.8	129	22.6	83	14.5	9	7	4	5	18	40
BARNSTAPLE	5,630	10,473	13,656	30.4	...	16,600	2.9	418	25.1	186	10.3	35	13	6	1	55	76
BARNSTAPLE	7,502	6,104	5,886	...	...	6,560	8.6	102	15.6	69	10.6	6	1	1	2	19	40
BARNSTAPLE	1,036	2,990	4,031	36.5	...	4,806	4.6	168	34.33	58	11.31	21	6	3	2	13	13
BARNSTAPLE	5,172	13,242	28,837	117.9	...	61,268	11.8	1,133	18.50	631	10.29	85	51	25	26	249	135
BARNSTAPLE	11,017	6,066	6,549	8.0	...	6,975	3.4	141	20.21	80	11.61	9	9	1	1	34	26
BARNSTAPLE	4,343	46,346	95,131	105.3	...	136,602	31.4	3,369	24.66	1,305	8.8	281	149	60	44	395	276
BARNSTAPLE	2,065	1,886	2,014	27.0	...	2,897	1.1	50	24.12	27	11.4	8	1	...	...	12	160
BARNSTAPLE	1,079	7,943	9,179	30.3	...	13,445	8.0	210	15.6	98	7.2	10	4	2	3	28	51
BARNSTAPLE	3,706	3,444	3,454	3	...	3,620	9	59	16.3	49	13.5	6	2	2	2	17	29
BARNSTAPLE	1,864	2,441	2,560	4.9	...	3,000	1.8	41	13.66	25	8.33	3	...	1	2	8	11
BARNSTAPLE	2,161	11,024	13,758	25.2	...	19,500	9.3	422	21.1	164	8.2	25	7	5	8	70	49
BARNSTAPLE	109,439	345,679	576,508	66.8	...	815,587	7.4	18,702	22.9	8,634	9.85	1,541	824	328	355	2,750	1,970
RURAL.																	
BELCHAMP	26,500	5,719	4,847	...	15.3	4,847	18	91	18.8	63	13.0	3	1	3	2	34	33.0
BELCHAMP	49,331	15,606	17.5	4	12.2	17,504	35	578	29.7	173	11.5	17	13	5	6	51	81
BELCHAMP	62,335	19,784	18,109	...	8.2	18,106	29	368	19.9	250	13.8	22	6	2	6	56	158
BELCHAMP	11,874	2,886	2,541	...	11.3	2,935	19	55	24.3	46	20.3	10	1	0	0	8	27
BELCHAMP	83,849	23,174	23,717	2.3	...	23,800	26	471	21.6	265	11.35	35	7	6	7	68	142
BELCHAMP	73,503	16,674	15,705	...	5.8	15,440	21	326	21.1	220	14.24	31	11	3	8	55	112
BELCHAMP	39,005	12,107	12,783	5.1	...	14,236	37	273	19.1	162	12.0	15	8	7	3	47	82
BELCHAMP	18,200	4,764	4,481	...	5.9	4,736	27	78	16.25	46	9.71	4	0	1	3	16	28
BELCHAMP	20,512	6,049	5,695	...	5.9	5,695	27	117	20.54	74	12.9	3	0	2	1	11	57
BELCHAMP	69,485	19,281	18,586	...	3.6	20,022	28	422	21.06	251	12.29	194	94	34	114	684	1354
BELCHAMP	82,342	15,741	14,433	...	7.0	16,034	19	357	23.3	224	14.0	23	3	5	12	68	113
BELCHAMP	47,236	10,557	10,444	...	3.9	10,500	2	218	20.75	102	15.45	21	21	5	5	31	79
BELCHAMP	39,039	14,913	19,912	33.5	...	24,317	69	682	27.2	276	10.90	634	404	114	234	984	145.0
BELCHAMP	55,886	11,931	14,566	22.1	...	16,700	29	433	27.1	205	12.2	28	16	11	14	58	76
BELCHAMP	29,723	14,326	19,018	32.8	...	24,054	80	641	26.6	263	16.9	57	19	10	10	72	95
BELCHAMP	59,975	12,468	10,704	...	13.6	9,409	15	224	23.8	171	18.2	14	6	8	46	91	62.0
BELCHAMP	22,054	6,008	6,288	...	3	6,888	30	148	21.4	90	13.0	9	1	4	2	22	60.8
BELCHAMP	73,131	19,904	20,346	2.2	...	22,953	3	464	20.84	271	12.2	344	124	64	114	794	1544
BELCHAMP	865,410	232,792	240,132	3.2	...	255,386	29	5,146	22.5	3,212	12.37	468	174	894	1324	8604	11924

a. Deaths registered in the district uncorrected.

TABLE C.
(Corresponding to Table III. of the Local Government Board.)
**NUMBER OF CASES OF DISEASE NOTIFIED IN EACH DISTRICT AND
NUMBER REMOVED TO HOSPITAL.**
1909.

1909.

TO HOSPITAL.

AND

NAMES OF LOCALITIES.	CASES NOTIFIED IN EACH LOCALITY.									NUMBER OF CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.									Totals.	Phthisis notified.
	Small-pox.	Cholera.	Diphtheria, including Membranous Group.	Erysipelas.	Scarlet Fever.	Euteric Fever.	Continued Fever.	Puerperal Fever.	TOTALS.	Small-pox.	Cholera.	Diphtheria, including Membranous Group.	Erysipelas.	Scarlet Fever.	Euteric Fever.	Continued Fever.	Puerperal Fever.	TOTALS.		
URBAN.																				
BARKING	...	...	54	30	188	9	...	4	285	...	...	40	...	162	7	...	...	...	209	...
BRAINTREE	...	...	4	2	1	...	...	...	7	...	...	...	...	...	...	...	...	...	1	...
BRENTWOOD	...	...	4	2	78	1	...	1	86	...	...	2	...	44	1	...	...	47	1	...
BRIGHTLINGSEA	...	...	...	1	38	...	...	...	39	...	...	...	...	...	...	...	...	...	...	...
BUCKENHILL	...	...	7	1	15	2	...	...	25	...	...	...	...	...	...	...	...	...	...	...
BURNHAM	...	...	3	2	...	...	...	...	...	...	...	5	...	12	1	...	...	...	18	...
CHELMSFORD	...	...	6	7	24	1	...	...	40	...	...	3	...	26	...	...	...	...	...	...
CHINGFORD	...	...	42	7	14	1	...	...	62	...	...	30	...	9	...	...	...	29	6	...
CLACTON	...	...	29	23	82	5	...	4	142	...	...	16	1	10	1	...	...	12	...	...
COLCHESTER	...	...	271	108	576	10	...	1	966	...	...	224	4	333	3	...	...	86	33	...
EAST HAM	...	...	8	2	6	...	...	...	16	...	...	8	...	5	...	...	...	629	58	...
EPFING	...	...	18	6	68	3	...	...	91	...	...	...	...	...	...	...	...	13	6	...
FRINTON	...	...	...	1	5	...	...	1	6	...	...	6	...	26	...	...	...	...	...	...
GRAYS	...	...	17	2	7	4	...	...	30	...	...	...	...	4	...	...	...	32	16	...
HALSTEAD	...	...	132	62	267	7	...	1	2	...	...	15	...	7	...	...	...	4	...	...
HARWICH	...	...	1	...	37	8	...	2	471	...	...	87	2	186	4	...	...	26	...	...
ILFORD	...	...	201	99	491	21	...	1	10	...	...	...	...	3	...	...	...	278	54	...
LEIGH-ON-SEA	...	...	...	2	65	...	...	...	823	...	...	122	22	301	11	...	...	...	...	...
LEYTON	...	...	3	6	10	3	...	...	87	...	...	...	...	...	...	...	...	...	...	...
LONDON	...	...	42	22	90	8	...	...	1	...	...	...	...	51	...	4	460	122	...	...
MALDON	...	...	1	2	4	...	...	...	158	...	...	...	...	10	4	...	...	...	...	...
ROMFORD	...	...	5	...	12	4	...	...	7	...	...	29	...	73	1	...	1	17	...	...
SAFFRON WALDEN	...	...	74	19	183	2	...	1	279	...	...	1	...	3	...	...	...	103	...	...
SHOEBURYNES	...	...	7	3	23	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
SOUTHEAD-ON-SEA	...	...	183	112	506	13	...	...	34	...	...	...	...	156	2	...	...	213	...	...
WALTHAM HOLY CROSS	...	...	...	...	4	...	...	...	814	...	...	7	...	21	1	...	...	...	...	...
WALTHAMSTOW	...	...	12	5	15	6	...	...	4	...	...	144	12	345	5	...	...	29	...	...
WALTON-ON-TRE-NAZE	...	...	3	3	6	...	...	...	35	...	...	...	...	10	...	...	...	506	...	...
WARSTEAD	...	...	2	1	1	...	...	...	12	...	...	4	...	...	...	...	...	3	17	...
WITHEAM	...	...	21	7	25	6	...	...	4	...	...	...	...	...	...	...	...	...	...	...
WIVERTHOE	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
WOODFORD	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL	...	...	1152	534	2876	109	2	31	4704	...	...	826	41	1932	55	...	8	2862	4	...
RURAL.																				
BELCHAMP	...	...	3	2	13	...	...	...	17	...	...	...	...	...	...	...	...	...	...	...
BILLERICAY	...	...	34	10	85	11	...	...	141	...	...	23	...	60	4	...	...	...	...	...
BRAINTREE	...	...	6	1	6	...	...	...	33	...	...	...	...	...	...	...	...	...	...	...
BUMPSTEAD	...	...	8	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CHELMSFORD	...	...	...	3	36	...	...	...	3	...	...	2	...	15	2	...	...	...	...	...
DUNMOW	...	...	7	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
EPFING	...	...	6	11	24	...	...	1	47	...	...	3	...	27	...	...	...	...	...	...
HALSTEAD No. 1	...	...	47	14	45	2	...	3	111	...	...	3	...	13	...	...	...	30	12	...
HALSTEAD No. 2	...	...	...	9	4	...	...	...	13	...	...	41	...	37	...	...	...	16	6	...
LEXDEN & WINSTREE	...	...	...	5	...	...	...	...	5	...	...	...	...	...	...	...	...	78	5	...
MALDON	...	...	4	14	42	...	...	...	60	...	...	...	...	...	...	...	...	...	...	...
ONGAR	...	...	10	7	19	3	...	...	37	...	...	...	...	...	...	...	...	...	...	...
ORSETT	...	...	7	9	37	...	...	1	84	...	...	1	...	7	1	...	...	...	...	...
ROCHFORD	...	...	32	13	131	8	...	...	184	...	...	...	...	...	...	...	...	9	17	...
ROMFORD	...	...	7	26	121	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...
SAFFRON WALDEN	...	...	42	14	96	6	...	1	161	...	...	21	...	90	4	...	...	115	...	...
STANFRED	...	...	3	3	7	2	...	3	155	...	...	27	...	...	...	...	...	...	...	...
TENDRING	...	...	10	6	...	...	...	...	15	...	...	2	...	77	5	...	...	104	7	...
TOTAL	...	...	219	154	769	60	11	1203	...	...	123	...	331	24	...	478	...	...	...	...

TABLE D.
INFANTILE MORTALITY.

	URBAN DISTRICTS.																			RURAL DISTRICTS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	Total under 1 month.	1-2 months.	2-3 months.	3-4 months.	4-5 months.	5-6 months.	6-7 months.	7-8 months.	8-9 months.	9-10 months.	10-11 months.	11-12 months.	Total deaths under 1 year.	Percentage of total deaths due to each cause.	Mortality rate per 1,000 Births.	Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	Total under 1 month.	1-2 months.	2-3 months.	3-4 months.	4-5 months.	5-6 months.	6-7 months.	7-8 months.	8-9 months.	9-10 months.	10-11 months.	11-12 months.	Total deaths under 1 year.	Percentage of total deaths due to each cause.	Mortality rate per 1,000 Births.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...</

